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FRUIT CULTURE, like farming, in this country, has been comparatively easy. The early settlers introduced fruits, and the apple, the pear, the plum, the cherry and the peach, together with small fruits, were raised more or less plentifully in colonial times. As new lands were entered upon, and local markets developed new orchards and fruit gardens were planted. But successively each branch of the industry when extended has found new and numerous enemies in insects and fungi; and especially is this true since railroad facilities have been increased and quick transportation and ready markets have favored the planting of large areas. The extension of fruit grounds and the increase of fruit enemies have proceeded *pari passu*, good breeding grounds and a plentiful supply of nutriment favoring the parasitic hordes, until it has seemed that their destruction was possible only by the destruction of the hosts upon which they live and rear their progeny.

For some years past, one has seldom
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been able to see sound apples, whether the orchards have borne abundantly or sparsely. The great enemy of this fruit has been the codlin moth, and for years it baffled the ingenuity and perseverance of orchardists for its destruction; now we have learned how to deal with it, and year after year sees the practice extending of spraying the trees with Paris green when the fruit is just formed. And this practice must be continued by all who expect to raise sound apples. Some, perhaps many, will neglect to make use of this means, and as a result will have only wormy fruit, which will command a low price in market. Those who will not take the necessary pains to secure sound fruit will eventually be driven out of the business.

Another trouble with the apple, which has been increasing for some years, and especially with certain varieties, though none are exempt from it, is what is known as the apple scab, a fungus growing upon and spreading over the skin of the fruit. Botanically it is known as

Fusicladium dendriticum. In light attacks of this fungus the apples have only some small scabs which are passed by almost unnoticed, but in severe cases the fungus spreads over a considerable portion of the surface, checking the growth of the fruit on that side and causing it to crack open and destroying its value. Experiments made last year at some of the Experiment Stations prove that we shall be able to control this disease and to produce fair fruit. The results of some of these experiments have lately been given to the public through the Department of Agriculture, and it is shown that by spraying the trees with an ammoniacal copper carbonate the germination of the fungus can be almost entirely prevented, and at a very small cost. Among a number of substances applied in solution the carbonate of copper treated with ammonia proved the most efficient. One series of experiments is reported by E. S. GOFF, of Madison, Wisconsin. These experiments were made at Ithaca, Wisconsin, in the orchard of Mr. A. L. HATCH, and the variety selected was the Fameuse, which is well known to be one of the varieties most seriously affected by this fungus. Twelve trees were taken and two each were treated with five different preparations and two were left as check trees. The result of the operations showed that the trees to which the copper solution was applied gave over 98 per cent. of fruit of first and second quality, and 75 per cent. was first quality. The effect of the other solutions employed was much less. On the unsprayed trees only 23 per cent. first-class, and 54 per cent. of second-class fruit were produced.

Mr. GOFF says: "The results of the experiments here reported justify the belief that the damages from the apple scab, *Fusicladium dendriticum*, Fckl., may almost entirely be prevented at a slight cost, by spraying the trees once in two or three weeks during the summer, with ammoniacal copper carbonate at a strength not to exceed $1\frac{1}{2}$ ounces of the carbonate and quart of ammonia to one hundred gallons of water."

Mr. HATCH, the owner of the orchard, also makes a report, according to which it appears that the sprayings were made May 18, May 30, June 4, June 17, July 1, July 24 and August 10. Sprayings with

London purple, for the codlin moth, were made May 22 and May 29. In conclusion he says: "The very satisfactory showing of the application (ammoniacal copper carbonate) will induce me to get a trial upon my entire orchard next season. There is one point our present season's experiment seems to show as desirable, viz., that one or two applications should be made earlier than those of this year. The first time of spraying was at the time usually selected to spray for codlin moth, *i. e.*, when apples are the size of peas, or before they turn down on the stems, while the calyx is upward and open. Although the first growth of apple trees was during very dry, cool, windy weather, I am satisfied that the activity of the fungus began with the very first swelling of the buds. We also found leaf rollers and curculios very abundant before spraying for codlin moths, and since the practical field application will be a compound insecticide and fungicide, my experience on twenty-five acres of apple orchard, this season, shows clearly that an earlier application will be eminently proper. What we now need is to determine the correct amount of the copper mixture to use, the times best suited to its application, and what combinations to make with insecticides, and a new era in fruit culture will be inaugurated."

Similar experiments, but somewhat varied, were made at the Michigan Agricultural College, and similar results were reached. A report from this Station is made to the Department of Agriculture by L. R. TAFT, the horticulturist of the Station. In this series of experiments the solutions employed for spraying which produced the best results were the ammoniacal copper carbonate, already described, and what is known as a modified formula of eau celeste.

Copper carbonate and ammonia. Prepared by mixing 3 ounces of copper carbonate with 1 quart of ammonia, and as soon as all action had ceased diluting to 22 gallons.

Modified eau celeste. Dissolved 2 pounds of copper sulphate in hot water, and in another vessel dissolved $2\frac{1}{2}$ pounds of sodium carbonate. Mixed, and before using added $1\frac{1}{2}$ pints of ammonia, then diluted to 22 gallons. The first application was made May 24, and

afterward June 6, June 12 and June 25. At this time, the report says: "The scab had now made its appearance on all of the trees, affecting both leaves and fruit. The amount of scab on the trees sprayed with the copper solutions was quite small." The report also notes that "the trees sprayed with the copper solutions had their fruits somewhat discolored in streaks, where the epidermal cells were destroyed. This gave them a russet appearance. A fifth application was made July 6, another July 24, and the last August 1.

"On the 5th of October the picking was commenced. The fruit was assorted into three grades: (1) those entirely free from scab; (2) slightly injured; (3) badly affected. Each lot was then counted and weighed. The trees had been subjected to the test of each solution, and those had been selected which in appearance were of equal vigor. The college orchard in which these trees are growing is thirty-two years old.

"One of the trees treated with copper carbonate produced 1540 fruits free from scab, and 1272 slightly scabby, and 7 fruits badly scabby, and the weight of each lot was respectively 449 $\frac{3}{4}$ pounds, 325 $\frac{1}{2}$ pounds, and 2 pounds.

"The other tree, treated in the same way, produced 2749 fruits free from scab, 2795 slightly scabby, and 6 badly scabby, and the weights of these respectively are reported as 657 $\frac{1}{2}$ pounds, 588 pounds, and nothing.

"The trees treated with eau celeste showed, for one, 1707 fruits free from scab, 217 slightly scabby, and none badly scabby; and the weights of these were respectively 494 $\frac{1}{4}$ pounds, 59 $\frac{3}{4}$ pounds. The other tree gave 2276 fruits free from scab, 1581 slightly scabby, and 11 badly scabby, with respective weights in pounds 679 $\frac{3}{4}$, 459 $\frac{3}{4}$, and 2.

The two unsprayed or check trees gave in one case 155 fruits free from scab, 1416 slightly scabby, and 31 badly scabby, with weights respectively in pounds of 41, 388 $\frac{1}{2}$, and 7 $\frac{1}{2}$. The other, 210 fruits free from scab, with weight of 60 pounds, 1082 specimens slightly scabby, weight 296 $\frac{1}{4}$ pounds, and 20 badly scabby, weight 6 pounds. A little calculation will show to what extent the diseased fruits were reduced in weight.

The report states that the effect of the

scab, so far as the value of the crop is concerned, is two-fold: (1) the value of the fruit is reduced, and (2) the presence of the scab to any extent renders the apples unsalable as first-class fruit, and they can only be disposed of as seconds, or, if badly affected, for cider.

The average of the results obtained this year show that the apples affected by scab are about 10 per cent. smaller than those unaffected, making a difference of a bushel of apples upon most of our trees.

Many of the fruits that would, if perfect, sell with the packing apples, are rejected on account of their reduced size or a few small scab spots. The past year, although our crop was unusually fair, an average of a bushel of apples per tree were thrown into the second-class from this cause alone; and from the combined effect of the above causes we lost on some trees a barrel of apples. When an orchard is neglected the injury from scab is often very great, in some cases the entire crop being of value only for cider.

Among other conclusions from the experiments, the report states in regard to the two solutions whose effects have been set forth above, that the ammoniacal copper carbonate is one of the easiest of all the mixtures to prepare, and its effects are comparatively lasting. It is slightly cheaper than the next, but it seems to have rather less effect. It showed itself, however, a valuable remedy, but on account of its slightly injurious effect on the fruit the formula will be improved by substituting 28 gallons for 22.

Modified eau celeste. The best results were obtained with this mixture, and with varieties likely to scab it will prove a good investment. Thirty or 32 gallons of water should be used where the formula calls for 22. By its use a difference in the amount of scabby fruit from 50 to 75 per cent. can be produced, and with such varieties as Fameuse and Northern Spy it will often make all the difference between success and failure.

From the experience of this year, we are convinced that with many varieties in localities where scab prevails, either of the copper mixtures will add from 26 to 50 per cent. to the value of the crop, at a cost not exceeding 25 or 30 cents for an average sized tree. This estimate will cover the cost of the chemicals and of their application, and if the season is a

warm, dry one, and the chemicals are purchased at wholesale, it can be reduced one-half.

The bitter rot of the apple has been arrested by the use of the ammoniacal carbonate mixture already described. What localities are most subject to the fungus that produces this rot we are not fully informed.

It is thought that the scab of the pear may be prevented by the same means employed for that of the apple; and the leaf blight of the pear yields to the application of the Bordeaux mixture.

As a result of the experiments noted, and others of a like nature, apple and pear growers are invested with largely increased power over their greatest enemies, and it only remains for them to use this power skillfully to raise better and larger crops of fruit than ever before.

Our readers are already familiar with the facts in regard to the use of copper mixtures on the vine to prevent mildew and brown and black rot of the grape. The present season, with its abundant rains, will, no doubt, cause many vineyardists to make use of these spraying mixtures. The results of last year's experiments with them, so far as they have been reported to the Department of Agriculture, leave no room longer to doubt that they can control both of the fungi which cause the great losses and destruction in vineyards, and prudent grape-growers will not fail to avail themselves of the immunity from disease which they afford.

Vine growers at the north have long held to the opinion that from some cause connected with the latitude they would be spared from the visitation of the black rot, that scourge of the southern vineyards, and up to this time the northern vineyards have been nearly free from it; still, it cannot be denied that it has appeared in many places, and where this is the case the Bordeaux mixture should be employed to prevent its spread. The downy mildew and brown rot, which cause most of the loss in the lake region vineyards, it is thought can be nearly or wholly controlled by either the ammoniacal carbonate or the eau celeste.

It cannot be expected in the conditions which now prevail throughout the country, whereby crops of good fruit can only be obtained with unremitting care and a

large amount of skill, that the relative number of fruit-growers will remain as large as it has been; only those who combine intelligence, energy and industry will succeed, others will find it unprofitable. And, again, it is but reasonable to suppose that good fruit of certain kinds will command a higher price than ever before.

All the rots, blights, rusts, mildews and scabs which are so injurious to fruits and fruit trees are fungi, and the germination of their spores is greatly favored by excessive moisture, and it is but reasonable to conclude, as observation also shows, that dry lands are more exempt from their ravages, while moist, undrained lands are their most favorable breeding grounds. The proper preparation of fruit grounds by underdrainage has never had the attention given to it that its merits demand, and fruit growers must fortify themselves on this point.

In regard to the equipments for spraying, quite a number of pumps and other apparatus are in the market, and the announcement is made that the government has been engaged with the problem of designing an effective and cheap portable apparatus for small places—an instrument on which there will be no patent, and which, therefore, can be manufactured anywhere. For large orchards and vineyards, casks or reservoirs of considerable capacity must be employed, which shall be drawn by horses. Accounts of such have already been given in these pages.

Spraying both for insects and fungi will be practiced on a much larger scale this year than ever before, and the results will be looked for with great interest. The results of the numerous trials last year have settled conclusively the general value of the operation, but undoubtedly this year's experience will make clear many points and details upon which there remain still some obscurity and doubt.

Fruit culture is evidently now entering upon a new era, and the fruit grower of the future must be intelligent and watchful, and prompt to meet any emergencies in his work, and the rewards of his labor will, no doubt, increase in comparison with the greater difficulties encountered. Improved methods in fruit-growing are sure to give better results.

THE GERANIUM AND ITS TRAINING.

It is a pleasure to present to our readers, this month, a plate of a new variety of geranium, the Countess of Derby. The large, round flowers, of good substance, with their handsome salmon color on a white ground, make this an attractive sort. It is a dwarfish, compact grower, and produces its flowers in great abundance. It is a good bedding variety, and especially valuable as a specimen pot plant. It is in this form that the geranium, in its numerous varieties, holds the popular heart. It is the window plant *par excellence*. And what beautiful shows of geraniums are often made in windows. Probably the best effect in this way is produced by allowing the plants always to face the light, and never turning them. This gives the passer on the street all the beauty of the plants and flowers, while the grower has the labor of attention and the satisfaction of contributing to others' pleasure. We like it, and it adds greatly to the appearance of a house or apartment from the outside. But while this mode of training the plants is desirable, we would have others trained as specimen plants, that is developed equally on every side, an object which can be attained only by exposing the plant to light on all sides. A symmetrically developed plant is the highest form of cultivation, and the highest test of the grower's art. What deformities one often sees in long-legged plants with a tuft of leaves at the top of naked stems! Can it be possible that those who care enough for plants to tend and water them, can see any beauty in such specimens? Or have they an eye only for the few poor flowers that such plants produce? As has been already noticed, plants grown to produce a certain effect, such as their appearance from the outside of a window, or as a mass in a bed, need have but little attention given to their development as individuals, but when we want a handsome plant, for the plant's own beauty, then we must attend to its growth from its earliest to its latest stages. As soon as the young plant enters upon a vigorous growth, the formation of branches should be undertaken and kept under control, and not be left to accident. A little experience in pinching the ends of growing shoots, and thus

checking them and causing them to push out new branches will show any one how completely this matter may be kept under control, and how we have the making of the plant in our own hands. The beauty of the plant depends upon a well formed skeleton of branches, and this we can regulate and shape. It requires about three years to produce a really large, fine plant of geranium, and during all this time, and afterwards, its shaping must be a work of care.

Some may object to such strict regulation of the plant, and say that it is artificial, and we cannot get in this way a plant of natural form. But it must be remembered that the plant in a cultivated state meets with nothing but artificial conditions, and it is a part of art to supply, in some way, the requirements of the plant. In their native habitats plants are subjected to winds, to droughts, to low temperature, and to other influences which have a tendency to check their growth. In our plant houses and windows we maintain, as much as possible, an equable temperature and a moist atmosphere, conditions which cause the plant to grow continuously and tend to make soft, sappy wood. Now, pinching the ends of the shoots remedies this defect to some extent, for it checks the growth, causing the wood to become firm and tough, while at the same time it makes new branches start out, the same as they would in a natural state if checked by elemental means. A plant left to itself to develop, standing among other plants, can only grow upward. It is like a tree in a forest, stretching up continually toward the light. A tree develops far differently when standing out alone than when surrounded by others in a forest, and its true, natural form can be seen only when it has grown out in the open. So, then, in taking our plant and causing it to develop its branches on all sides, although the means are artificial, the result is nearer that which nature would produce under the best conditions. The best development of the individual plant is the highest achievement of cultivation. As to bloom, that will be sure to come when the plant is healthy and thriving, and there should be no anxiety to hasten this stage.

THE EUPHORBIACEÆ.

The Euphorbiaceæ, or Spurge family, is a large and interesting order, containing some of the most beautiful and highly prized exotics, and also several plants considered valuable for the medicinal properties which they possess. One of the best known of the latter class is the *Ricinus*, from the seeds of which is expressed that terror and nightmare of childhood, castor oil. There are many varieties of this plant much used for sub-tropical effects, and therefore dear to the heart of the modern gardener. The *Ricinus communis* is a native of the East Indies, where the plant, which is an annual in this latitude, becomes a tree "thirty feet in height, with a corresponding thickness, so that ladders are used for climbing it." The name *Ricinus* is said to have originated with the Romans, who gave it to the plant on account of the resemblance which its seeds bear to an insect of that name. That people have taken an interest in the *Ricinus* from very early times is shown by the discovery of its seeds in Egyptian sarcophagi. The castor oil, so widely known as a purgative, is also adapted to other purposes, being largely employed as a lubricant for machinery, and in Lima is promoted to the dignity of a street luminary.

Croton oil, a powerful counter-irritant, is a product of the seeds of the Croton tiglium, another member of the Euphorbiaceæ. These seeds, which are "about the size of a field bean," are a violent purgative, at one time much used in Europe, but now superseded, let us hope, by more gentle and reliable cathartics. The Croton Pavana seems to possess the same medical properties as the Croton tiglium, and is employed in some eastern localities for the same purposes. Croton gratissimus furnishes a perfume and cosmetic, which are doubtless conspicuous among the toilet accessories of the South African "damozel," as they are said to be very popular at that portion of the antipodes. Some of the South American Crotons yield sap, which is "dried and used as incense." The barks of other species are known to the medical fraternity as casca-

illa and copalche. The first figures in the manufacture of "incense and pastilles," and also in medicine in lieu of cinchona. The second is the product of two Crotons indigenous to Mexico, where their bark serves "as a substitute for cinchona in the cure of intermittants." Those aristocratic denizens of the greenhouse and special favorites of the florists, the fancy leaved Crotons, cultivated for their foliage, with its beautiful markings and tropical luxuriance, are too well known to need more than a mere allusion here. It is sufficient to say that they are among the finest and most effective of our greenhouse plants or shrubs, being unsurpassed for decorative purposes.

Wood, in his Botany, issued in 1844, places the number of species of the Euphorbiaceæ at 1500, and states that "an acrid stimulant and poisonous principle, residing chiefly in the milky juice, pervades the whole order." Later statistics prove that during the last half century many new species must have been discovered, or other orders are now consolidated with the Euphorbiaceæ, as the number of species is at present estimated at "over 2500." The "poisonous principle" alluded to by Wood, and which is present in many species, seems to be absent from some kinds, or only present in very limited quantities, since we are now informed that "a few are cultivated and used as pot herbs," and that "some yield wholesome and agreeable sub-acid fruits." The seeds of various species "are eatable," and the oil figures conspicuously in the culinary department of certain peoples, and is also employed, like the castor oil in Lima, to "give light to those that sit in darkness."

One of the gayest members of this extensive order is the *Euphorbia pulcherrima*, perhaps better known as *Poinsettia*. This shrub, which is a native of Mexico, is grown for the beauty of its heads or clusters of flaming vermillion bracts or leaves which crown the ends of its branches, and have the appearance of immense flowers. *Euphorbia fulgens*, or *jacquiniflora*, another Mexican species, is honored with a place

in the greenhouse or conservatory on account of its pretty "bright red" flowers (or rather involucres, since the flower itself is not showy,) and though possessing considerable merit, is probably not so generally known or cultivated as *Euphorbia splendens*. The latter is a native of the Mauritius, and commonly called "Crown of Thorns. Its twining branches, bristling with such a fearful array of merciless thorns, have won for this plant the unsavory reputation of being used for the crown of thorns placed upon our Savior's brow. This *Euphorbia* is, as the specific name indicates, a splendid plant, and it is one which I have found during several years experience with it to be free from those "haunting atrocities," the insects which worry one at times into a desperate feeling that the most sensible thing to do would be to throw plants and their persecutors right out of doors, and be "quit" of the whole business. This kind of feeling, I notice, is of a transitory nature, and the genuine flower worshipper usually rises, like the *Phœnix*, from the "ashes" of her desolation and returns to the attack with renewed energy and the house plant is reinstated with perhaps more than its former glory.

The *Euphorbia splendens* is an excellent plant for either greenhouse or living room, as it will endure uncomplainingly any amount of neglect, or will only make its sorrows known by dropping its leaves or by producing fewer flowers. Those who have not a greenhouse or large conservatory will do well to keep the plant pot bound, and not water plentifully, in order to prevent it from getting of unmanageable size.

The story goes "that the *Euphorbia* was

named for *Euphorbius*, physician to *Juba*, king of *Mauritania*," but whether there is any more truth in it than in the theory that the crown of thorns was made from *Euphorbia splendens* (and which doubtless originated in mere fancy), we cannot tell, as the proof appears to be wanting, while the name itself seems to bear out the truth of another statement that the name was derived from that of "Euphorbus, an ancient Greek physician."

Whatever decision may be arrived at about the origin of its generic name, those who have cultivated this plant can all agree upon one point, and that is the desirability of this species for window culture. Its cymes of tiny blossoms, surrounded by brilliant petal-like bracts, and poised upon slender stems, brighten up the gray thorny branches or stems which are but partially hidden by the vivid green foliage, and redeem the plant from an appearance which might otherwise truthfully be characterized as frightful. In fact, the botanist *GRAY* does not hesitate, when describing the stems of the *Euphorbia splendens*, to term them *horridly* prickly. This strange plant needs all the brightness of its numerous brilliant flowers to protect it from the accusation of being uncanny looking, and yet there is a fascination about it which grows on one who sees the weird thing, and which is apt to culminate in the possession of a specimen.

Those who cultivate the plant, or rather shrub, should be careful not to get the milky juice which exudes from broken stems in the mouth or eyes, or on any abrasion of the skin, as, like many of its race, this *Euphorbia* has an acrid or poisonous juice.

MRS. LUNEV.

BOUVARDIAS.

Bouvardias are among our very best winter-blooming plants, and may be grown not only in warm greenhouse and conservatory, but quite successfully in the window garden. In color, size and shape of bloom they present a pleasing difference. Alfred Neuner, double and pure white, its flowers looking like clusters of miniature *Tuberoses*, and possessing faintly their fragrance, is handsomest of all; Victor Lemoine, also double, has large clusters of brilliant red blossoms;

President Garfield, soft rich pink double flowers; *flavescens*, single, a pale yellow; and *Leiantha*, the earliest and most faithful bloomer of all, is dark scarlet. Among a long list of varieties I have chosen these as best and most distinct.

Bouvardias root quite easily from cuttings of the new wood, or when re-potting old plants if bits of the roots are pinched off and buried near the surface of the soil they will soon start and become vigorous plants. These cuttings

should be struck quite early in the spring if the plants are desired for winter bloom-ing; when large enough set in the open ground, kept free from weeds, and pinched back, to grow strong and branching. They must not be allowed to bloom in summer if you would have an abundance of bloom in winter, for "you cannot keep your cake and eat it too." In September re-pot in rich, rather light, well drained soil, and shade until well established. When brought into the house the quanti-

ty of flowers they will give you depends upon the amount of light and heat which you can give them, 35° to 60° being a desirable average temperature. Never let them become pot-bound, and after buds begin to appear give liquid stimulant once a week, and shower them to keep down insects.

For summer bloom as bedding plants they are equally good, and in this case the young, strong plants should be ready to plant out by the middle of May.

L. GREENLEE.

THE IRIS.



Of stately growth, rich perfume, and an endless variety of color, this kingly flower, half orchid, half lily, has won for itself favoritism wherever grown. In England it is extensively cultivated, and is perhaps one of the most popular of hardy plants, while in our own country every lover of flowers has at least some varieties of this charming plant among his collection.

As a garden plant it is especially desirable, and years ago we began with the low old-fashioned Iris, or Flowering Flag, with which we bordered our beds, and have it still, its low fragrant blossoms always at hand in the early spring. An older species of Iris, and much more rare at this day, is a peculiar variety called by the old people "Quaker Lady," of silvery hue, richly dappled and veined with bright yellow and deep maroon, its foliage delicate, of a bulbous nature, and blooming exceedingly early—in March and April.

But it is to the large-flowering and free-blooming varieties we would call attention. Most of them are quite hardy and very easily grown, and can be planted in spring or fall. Planted singly they soon form clumps of their own, with flowers whose quaint form, richness of color and delicate perfume, defy description.

A pure white variety is equal to the rarest lily, and much more easy of cultivation. Each clump of the Iris will send up many flower stems, and each stem bear several large beautiful flowers, whose delicate texture will be a marvel to the beholder. Dappled, striped, bordered and mottled, with crimped edges and plain; with the richest violets, gray and rose; with some of the newer varieties more veined still, until almost every color shown in flower is to be found among this family.

The German Iris are very fine. Among them Bacchus, a tall-growing variety, white, with the margin veined with purple, and Cherau, of smaller growth, color bronze yellow, with maroon on white ground. Iris Susiana is another variety of great beauty, flowers very large, mottled chocolate and black, veined with the silvery gray.

When once planted the Iris will increase in beauty and size every year. The taller varieties can be placed in the background and the low-growing sorts and medium sized in front—a charming picture when in full bloom. They bloom from May until last of June, and some of the old-fashioned dwarf varieties much earlier. The flowers when cut are fine for house decoration.

H. K.

FRUIT CULTURE IN TEXAS.

Probably no State in the Union has made more rapid strides in fruit culture in the last decade than Texas. When I look back to the Texas of fifteen years ago, when I first came to Galveston, and compare it with the Texas of to-day it seems hardly possible to believe it the same country. Immigration from all quarters of the globe has been pouring in and developing the then comparatively dormant resources of the State.

The map of Texas at that time contained a vast blank space marked "Llano Estacado, or Staked Plains." At that time that part of the State seems to have been considered a howling wilderness, incapable of sustaining either animal or vegetable life. It had received its name of Staked Plains from stakes that had been driven in the sandy soil to mark the paths of parties, as was supposed, who had been compelled to cross the desert plains, and stories of parties who had become lost and perished on the plains were current. The Llano Estacado has disappeared from the map of Texas, and though the Staked Plains are still referred to, they are now laid off into county boundaries with organized and unorganized counties, and occupied by villages, farms and ranches. I suppose there are patches of desert in this region, but it is safe to say that nearly all of it is capable of furnishing pasture lands for cattle and sheep, while probably fully one-half of it

will in time be found to be fair to good farming land, fully capable of producing farm crops and of sustaining fruit and other trees.

Fifteen years ago very few Texas peaches came to the Galveston market, but the shipments steadily increased, until now the receipts during the season amount to more in a week than they formerly did for the season.

I was amused, some years ago, in reading an account of the proprietor of one of the largest nurseries in Texas, Mr. WATSON, of the Rosedale nurseries at Brenham. The article stated that years before, when Mr. WATSON, an Englishman by birth, first settled at Brenham, he was frequently seen riding over the country with a bundle of young trees designed for his nursery, and it was a common remark among the people, "there goes that crazy Englishman with his bundle of brush." Mr. WATSON has proved that there was "method in his madness," as he is now one of the largest producers of peaches in the state, if not in the country. I do not know how long back it is since Mr. WATSON started his nurseries, but a correspondent of the *Southern Horticulturist* thinks the first nursery in Texas was established by Mr. JOHN DUNCAN, at Marshall, and claims that a son-in-law of Mr. DUNCAN is carrying on the Marshall nurseries at present.

The progress of horticulture was prob-

ably slow for a series of years, but of late has been making rapid strides.

Oranges grow well all along the coast of the Gulf of Mexico and in the southern part of the State.

Within the last seven years considerable attention has been paid in this immediate region of the State—Galveston county and the peninsula on which it is located—to the pear culture, and with a success that promises to make it one of the great pear growing sections of the world.

Plums have also received much attention in the last few years, and the Marianna, a large early species, with trees of rapid growth, are being very extensively planted along the coast region, if not throughout the State. The introducer, Mr. C. N. ELEY, claims to have had a crop of three bushels of fruit from a four-year-old tree. The tree grows readily from cuttings.

Some six or seven years ago Mr. H. M. STRINGFELLOW, an old resident of Galveston, removed to Hitchcock, fourteen miles from Galveston, on the main land, and set out a number of Le Conte pear trees. Of the result he wrote as follows to the Galveston *News*: "While the common varieties of pear are not a success in the coast country, the Chinese strain with its hybrids have proved themselves so perfectly adapted to it that it can be truthfully affirmed that not even the live oak and cottonwood are more perfectly at home. Although the oldest of these trees in the county are but seven years old they stand to-day twenty-five feet high with a spread of twenty feet, and from one of them eight bushels of pears were gathered last July, and many yielded as much as five bushels to the tree. During all these years a close observance has not detected a single fault in health, growth or productiveness, and what is the most remarkable, these trees being worthless except on their own roots, this peninsula is the only part of Texas where they will grow with any degree of certainty from cuttings. While the fruit is not of the highest quality, it sells everywhere, bringing better prices last season, in both St. Louis and New York, than their home-grown Bartletts, and averaging \$5 to \$6 per barrel in the latter city up to the 18th of July. While

the Keifer succeeds well all over the State, the Le Conte does not, but finds itself more at home in the lower half of it, and the further south it is brought the better it does."

Mr. STRINGFELLOW estimates that there are now 35,000 trees from one to seven years old set out in Galveston county, and that ten years hence the yield in this county, even without further planting, will be at least 280,000 bushels. He says the fruit can be canned, preserved, cooked as a vegetable, evaporated or made into excellent cider or vinegar with profit. Some of the fruit sent to an evaporating establishment, with a request to note results closely, yielded eleven pounds of evaporated fruit to the bushel, and the evaporated fruit was pronounced by a number of Galveston grocers as equal to the California article. The fruit is usually ready for market the last of June.

In a letter to the writer, Mr. STRINGFELLOW says: "From a very extensive knowledge of the pear growing regions of our whole country, California not excepted, I can say we have as good, if not a better, country for this fruit than can be found anywhere. The whole surface of Galveston county is sub-irrigated at an average depth of five or six feet, which accounts for the perfection to which the pear attains. Our trees of all kinds are unaffected by drouth, as their roots are down in the living water. * * * I will market at least 4,000 bushels of fruit this season, and only 400 trees in good bearing, with a few on the younger trees."

During the warm weather of January and February the trees put forth a number of blooms, and in the latter part of February numerous young pears were growing, but a cold norther, with frost, that damaged or killed fruit almost all over the South, killed the young pears. A visit to Hitchcock on the 15th of April, however, showed the trees in bloom again, and a crop as large as usual is looked for at present.

The fig does well pretty much all over Texas, though as near as I can judge there is not much of the fruit cultivated for market in this State.

Strawberries grow readily in all sections of the State, and in this neighborhood the past few months have been remarkable for this berry. Strawberries

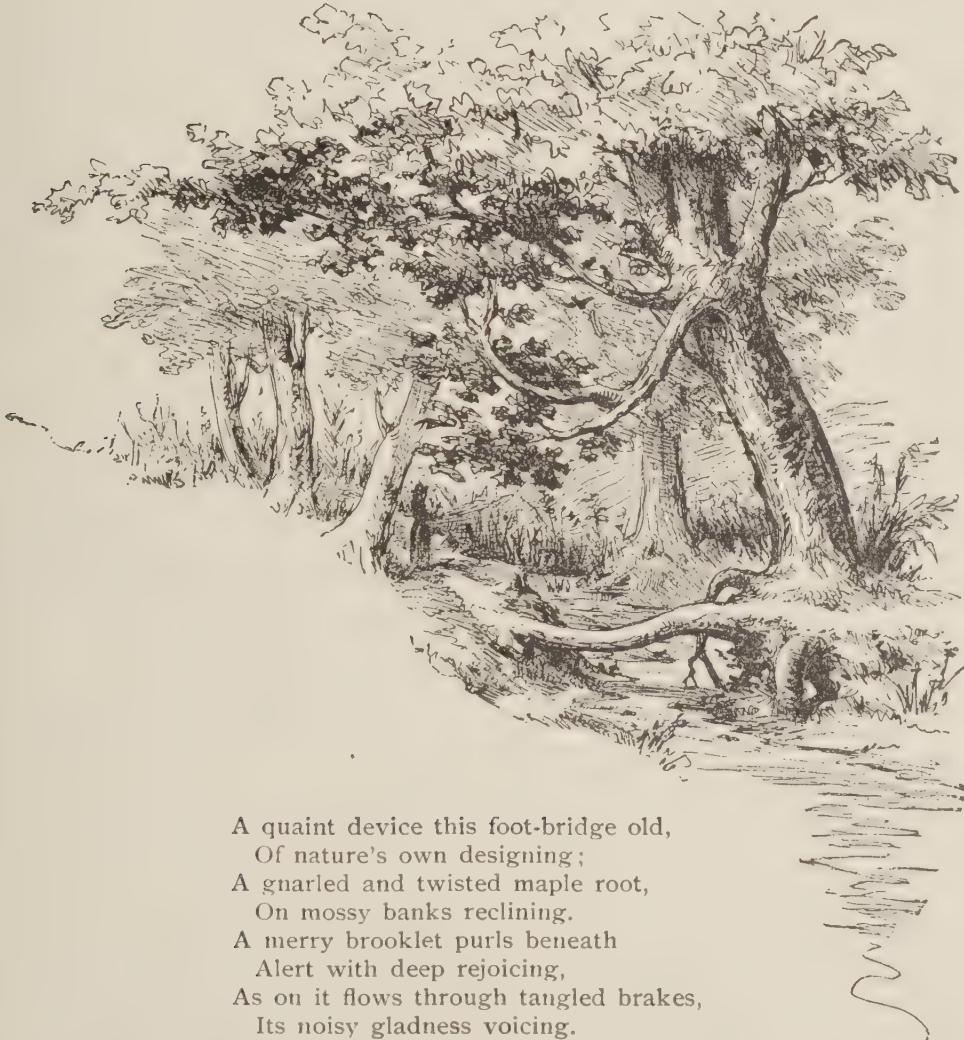
were picked almost every day from Christmas until nearly the 1st of March. The cold snap spoken of above killed the foliage of the plants to some extent, but they have since recovered, and on the 5th of April strawberries were again in the market here, while the plants were still in bloom in the gardens from whence they came.

I have eaten pomegranates fresh from the tree in Galveston, though I think most of the trees were either killed or injured by the overflow of 1886. The trees are cultivated here more as ornamental and flowering plants than for the fruit.

Mulberries grow readily on the island, as well as all over the State, and bear freely.

An orange recently introduced here from Japan, called the Oonshiu, is claimed to be of superior flavor, with prolific bearing qualities, and to be almost hardy. However, there are those who deny the hardiness of the tree, and I have seen letters from California which declare that it is not hardy where the thermometer goes below 17 degrees, and not safe to plant in a climate that goes below 26 degrees. I believe the Agricultural Department at Washington, and some horticulturalists, claim that the Oonshiu is the Satsuma, introduced some years ago in Florida and afterward abandoned as unsatisfactory. I do not feel competent to express an opinion as to the correctness of this assertion. R. B. S., *Galveston, Texas.*

THE FOOT-BRIDGE.

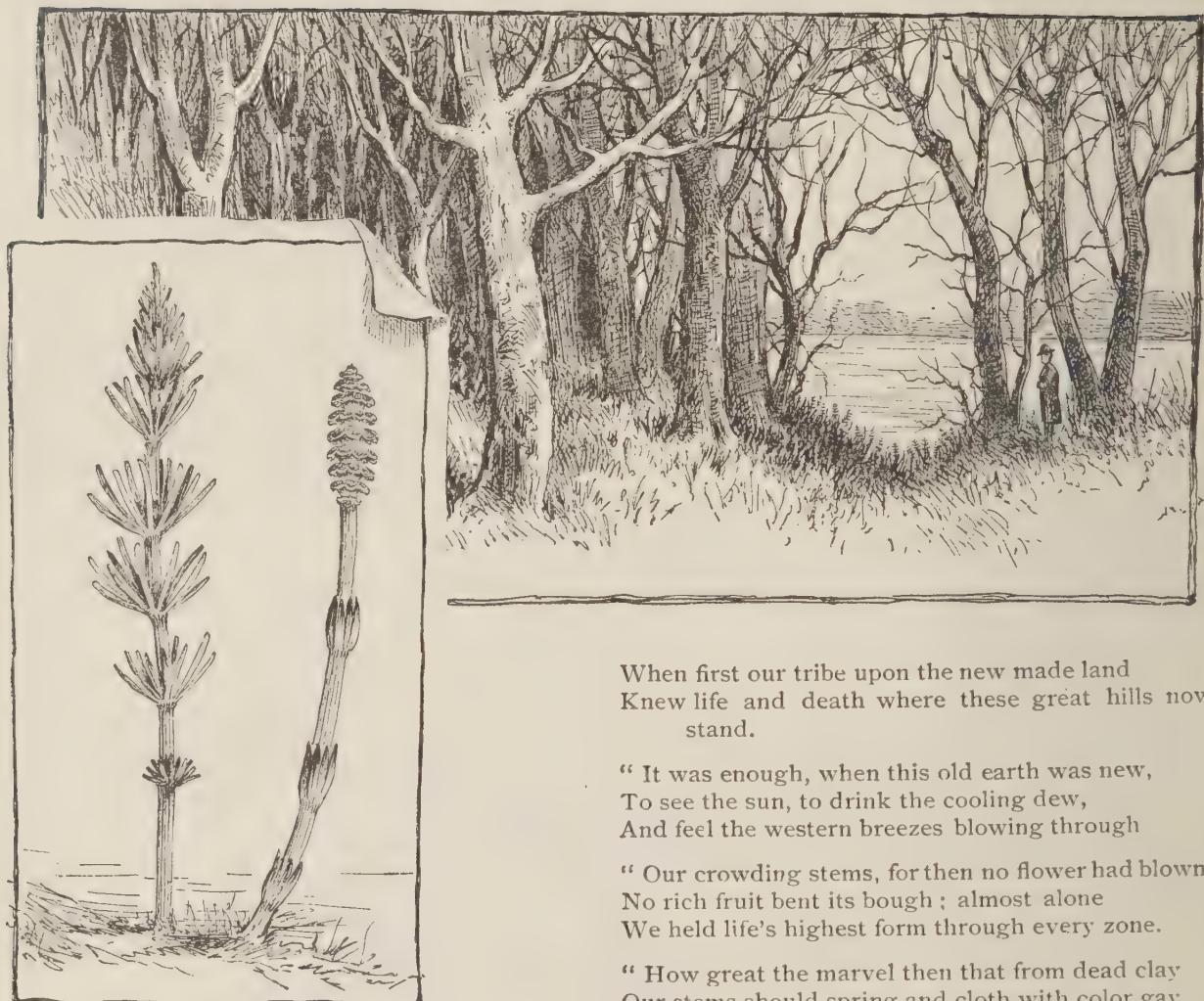


A quaint device this foot-bridge old,
Of nature's own designing;
A gnarled and twisted maple root,
On mossy banks reclining.
A merry brooklet purls beneath
Alert with deep rejoicing,
As on it flows through tangled brakes,
Its noisy gladness voicing.

Where high above this foot-bridge quaint
The branches meet and mingle,
A pair of happy song birds send
Their joy adown the dingle
In merry bursts of loudest praise
Of life among the heather,
Of clover-tops and thistle-blooms,
Of love, and summer weather.

A place to dream, this quiet spot,
All troubulous things forgetting—
A place to drive dull care away,
To cease all useless fretting.
With maple branches overhead,
Beneath, the brooklet's singing,
I linger near the foot-bridge old,
While summer days are winging.
S. E. KENNEDY.

THE SCOURING RUSHES.



EQUISETUM.

A sky of moveless cloud, beneath whose wing
(Though still afar the days of blossoming)
The silent land is dreaming of the spring

Whose mild and pleasant breath is in the air,
Veiling the distant hills with purple fair,
Though all around me is so brown and bare.

Where slopes the bank to meet the shallow side
Of the clear stream, in ranks extending wide,
Their still forms mirrored in the gleaming tide,

Thick growing scouring rushes, green and gray,
Clothe all the shores of this pellucid bay,
Waiting and waiting through the somber day.

“ The snow has gone,” the patient rushes sighed,
“ Soon will the spring and summer, in their pride,
Fill with fresh verdure all this landscape wide.

“ How many, many springs have come and gone,
What endless summer suns have shone upon
Our ancient race since first our days begun.

“ We saw you split the laminated stone,
And look intently at the marks thereon,
The weed drift’s impress of long ages gone,

“ The slow worm’s trail, the sea shells cast, whom
we
Saw live and move, the ripple molded free
By the soft kiss of the Devonian sea,

“ Whose sad waves ebbed and flowed along the
strand

When first our tribe upon the new made land
Knew life and death where these great hills now
stand.

“ It was enough, when this old earth was new,
To see the sun, to drink the cooling dew,
And feel the western breezes blowing through

“ Our crowding stems, for then no flower had blown,
No rich fruit bent its bough; almost alone
We held life’s highest form through every zone.

“ How great the marvel then that from dead clay
Our stems should spring and cloth with color gay
Earth’s solemn landscapes, else so drear and gray!

“ But now from east to west behold the bloom,
The gleam of fruits, the beauty and perfume
For which the hills and vales can scarce find room.

“ The autumn’s heavy drooping plumes of gold
Rise bright and fair above the fertile mold,
Where April saw the bloodroot’s flowers unfold.

“ Whence all these flowers that now possess the
earth?
They had no place on our far day of birth,
To you that day had seemed of little worth.

“ When fades the snow and warmer days have come,
* A little bulb puts forth its pink lined bloom,
But soon withdrawn into its silent home

“ It waits until the earth has swept again
Her circle vast, then mid the vernal rain
Its fragrant blossoms tint the woodland plain.

“ How dear must nature hold this little flower,
To choose so carefully its op’ning hour,
When summer heat nor winter storm has power,

“ And drop from heaven the purest snowflake gems
Which, turned to dew, may nurse its tender stems
Until its flowers are worn like diadems.

“ Are we, perchance, uncared for that we bide,
In this dull form the winter’s ravage wide,
And the fierce heat and drouth of summer tide?

"O, tell us, you, whose strong eye ranging far
Reads the dark secret of the sun and star,
Shall we forever be as now we are?

"Or, will some gracious morn at length be told,
Whose joyous sun shall see us proudly fold
A shining daisy with its heart of gold?

"The spring awakes the verdure of the plain,
And our sap stirs in every sluggish vein,
And then the hope that we may break our chain

"Soon lives again, born of the tender sky,
The water's chiming fall, the lullaby
Of fragrant breezes idly wandering by.

"The juicy soil, the sunlight's wondrous power,
We gladly say will now bring forth the hour
That crowns us with some splendid fruit or flower.

"But the years go—how many years have passed!
And still, within these waters, flowing fast,
The autumn ever sees our old forms glassed,

"And shamed by gorgeous children of the sun,
Whose varied glories seem so lightly won,
We almost would our weary race were run.

"Happier our kind, so long since laid at rest,
Pressed 'neath the strata of earth's rocky breast,
Than we who urge this almost hopeless quest.

"O, plants of ancient race," I made reply,
"Tis true my sight is swift, but great and high,
Life's awful questions shadow earth and sky.

"And, though I aim my sight and pierce the deep,
From where great fields of stardust seem to sleep,
To narrow realms where animalcules leap,

"What have I gained, more than to sweetly see
That strongest eyes behold most mystery
In world, or sun, or grass, and flower and tree!

"I cast your horoscope? I know too well
With what amaze I view the simplest cell
That shapes within your green stems' flinty shell.

"What, whence and whither? the free night winds
pour
Their viewless surges on the forest's shore;
My ear is filled with their deep, solemn roar.

"And far away, along the dark world's rim,
A waning moon may for a moment swim,
Ere mists close in and all is gray and dim.

"The rushing winds and hurrying clouds o'er-sweep
A lonely land, given up to death or sleep;
I wake alone, to muse on problems deep.

"Let pass;" the rushes said, "the world's deep
core
Is not for us who haunt this grassy shore,
But may we not forego God's mighty lore?

"Have living things, wherever you have trod
The ancient forest and the flowery sod,
Alike discerned the hidden thought of God?

"The primal knowledge we will gladly spare,
If nature, heeding our most earnest prayer,
Can spread us one small leaf to sun and air.

"Then would hope reign, to bless our endless
years,
A long, long period, void of doubts and fears,
As one, who, midst vain sounds, forever hears

"A chant divine, of perfect rhythmic beat,
Flow on in glorious chords that still repeat
Its living soul of melody so sweet."

The rushes wait beside the shallow bay
The darkened ending of the silent day;
The great globe rushes on its rapid way.

E. S. GILBERT, *Canaseraga, N. Y.*

FLOWERS OR WEEDS?

Upon the grave of him who dies,
In Wales, they plant some flower, intended,
By name or hue, to symbolize
The life that now on earth is ended.

So, does a maiden die, unwed,
Of blameless deeds and fame unspotted?
Her history is clearly read
In the white rose to her allotted.

Or, is it one whose every day
Was full of love's unselfish labors?

The red rose doth his life portray,
Placed on his grave by grateful neighbors.

And sometimes, though but seldom so,
For man is everywhere forgiving,
Are worthless weeds allowed to grow,
Their tale to tell and warn the living.

Ah, reader, scanning now these lines,
What would men plant—thy past disclosing
Thus through such sure though simple signs—
Where thou shalt lie so soon reposing?

PHILIP BURROUGHS STRONG, *Malone, N. Y.*



FOREIGN NOTES.

PERMANENT BEDDING PLANTS.

There are many subjects suitable for forming permanent flower beds, and, so far as my taste is concerned, none are more beautiful than carnations. These, as is well known, when properly managed produce an abundance of bloom varied in colors, and in the case of cloves delicious in fragrance. I remember having seen a number of beds containing old crimson cloves and other border carnations in close proximity to a line of beds planted with calceolarias, pelargoniums, etc., and the difference between the two was most conspicuous, the carnations being decidedly the best. But, some may argue, the carnations will not bloom until the autumn. True, but are there not numerous dwarf-growing, autumn-flowering perennials that could be associated with them? Such common subjects as snapdragons, pentstemons, violas, etc., would, if judiciously arranged, produce a telling effect. The well known Madonna Lily (*Lilium candidum*) also makes a charming bed on a lawn, but seldom have I seen it used for such a purpose. It is in cottage and old-fashioned gardens that this lily, the best of its class, is seen to advantage. The Iceland poppies (*Papaver nudicaule*) will also produce an effect that no ordinary bedding plant in cultivation is capable of doing. These, as is pretty well known, form ornamental tufts of fern-like foliage, and produce flowers of various shades from pure white to a deep orange-scarlet. They are, moreover, most profuse bloomers, producing an immense quantity of bloom from June until September. Another fact that strongly recommends them for beds is their dwarf habit, for when in bloom they rarely exceed a foot in height. As a rule, they do best in cool spots and in a moist but sandy soil. The Alpine poppies (*Papaver alpinum*) are also beautiful little plants, and admirably adapted for beds. There are several forms of them with white, scarlet and yellow flowers. Like the Iceland poppies, too, they appear to thrive best in moist, sandy soil and in cool positions,

but, as far as my experience goes, do not bloom for so long a period. Many of the dwarf growing campanulas, again, make by no means ineffective beds. For small beds or as an edging to larger ones, the pretty little *Campanula pulla* is well adapted. It is a dwarf grower, rarely exceeding six inches in height, and produces abundance of dark blue or purplish bell-shaped flowers. *C. turbinata*, another dwarf growing kind, I have also seen answering well for the purpose; it makes an effective bed, and will thrive, moreover, in a partially shaded position. The flowers are somewhat large and of a deep bluish shade. *C. glomerata* and *C. grandis* would also make a fine show during the summer when planted in masses in beds, while the same may be said of *C. grandiflora* and *C. Carpatica*. The last named is especially useful for beds, and should be largely used for the purpose. The type has fine blue flowers, while *C. Carpatica alba* has pure white blooms. Single and double Pyrethrums, too, make a good show with their variously colored flowers when planted in beds, but as they only bloom during June and July they require to be associated with something else, in order to prolong the flowering period until the end of the summer. For this purpose some of the late flowering lilies, such as *Lilium auratum*, would be well adapted, and if judiciously arranged the effect would be very telling. Among the numerous Irises now in cultivation may be found some exceedingly showy plants, and if planted with taste a few beds of these would produce a most charming effect. The common and much grown *Iris germanica* in its numerous varieties is as good as any for planting in beds. The Gaillardias afford a showy and pleasing variety, while the same may be said of the Aquilegias, of which I have seen fine beds, and the effect was everything that could be wished for. *Aquilegia cærulea*, *A. Skinneri* and *A. chrysanthia* are best adapted for growing in beds. Then some bold masses may be made of the Japanese windflowers (*Anemone Japonica*), with the white and rose-colored

flowers. Only those who have seen the beautiful white variety Honoree Jobert planted thus can form an adequate idea of its value for such a purpose and the effect it produces. No bed, no matter how elaborately planted, of common tender subjects is capable of producing such an effect. The spring flowering kinds, such as *Anemone fulgens*, *A. apennina*, *A. blanda*, etc., are equally effective and worthy of being planted in quantity. The same may be said of Hepaticas, for these are exceedingly pretty in beds in early spring. There are many other subjects also suitable, such as Sweet Williams, Lychnises, Spiræas, Pinks, Primroses, Iberises, &c.

To produce the best effect, however, with these permanent bedding plants some regard must be paid to the arrangement of them, so as to have a few in flower from early spring until the end of the autumn. Then, again, each kind should be placed in groups or clumps as large as the beds will permit, and, moreover, place those with finely cut foliage close to others that have broad leaves. For a spring display bulbs in variety may be largely used, and by the time these are at their best the summer flowering subjects will be just in the zenith of their beauty, and so on until the winter sets in.

C. L., in *The Garden*.

TROPÆOLEUM AZUREUM.

Tropæolum azureum is an old plant, but it has become so rare that it is new to many. There is a charming group of it in the greenhouse at Kew, where there are also many other interesting things now in flower. This pretty blue *Tropæolum* should be in every greenhouse, as it is extremely elegant and produces a profusion of flowers of a similar color to those of *Violet Marie Louise*. It is a tuberous species, and was introduced from Chili in 1842. We lose much by not growing such a lovely thing as this and the little *T. tricolor*. A light peaty soil mixed with leaf-mold, or good turf loam and peat, will grow the tubers well, and throughout only greenhouse treatment is

necessary. Plenty of water and light is essential during the growing season, and in training the delicate growth on the trellis or balloon take care not to break the brittle shoots. When at rest give no water, and when growth begins again, shake out the tubers and repot. By this simple treatment plants full of flowers of a delightful shade may be had for the greenhouse or conservatory.

The Garden.

VICTORIA APPLES IN LONDON.

In response to an offer of a prize of £5 by the Victoria government, two fruit-growers in that country made consignments of apples to London. They were sent to the Agent-General for Victoria, and opened at his office on the 19th of May. The competitors are S. A. NIELSON and Mr. DRAPER. *The Garden* says :

"There was no question as to the merit of Mr. NIELSON's mode of packing. In all there were ninety-six fruits, only five of which were decayed, and four of these only slightly, these consisting principally of Adams' Pearmain. The fruits which had been gathered on March 15th, 1890, were packed on the 20th, and placed singly in ordinary paper bags. These were in layers, and the intervening spaces carefully filled with paper shavings, a piece of paper the length of half the box, as it was divided into two compartments, being laid between each layer; thus there was little chance of injury. The fruits were in admirable condition as far as appearance went, and in color remarkably bright; but the flesh was, with one or two exceptions, very dry and tasteless." Jonathan is mentioned as one of the best; Ben Davis as tough as leather; Sutton's Seedling like wool—wholly without flavor.

The fruits in the other box, packed by Mr. DRAPER, were wrapped separately in tissue paper and closely packed together. Not a single specimen came out uninjured. It is extremely doubtful if Australian orchardists will ever be able successfully to compete with American apples in England.



PLEASANT GOSSIP.

THE COLUMBINE.

Of all the saucy flowers that grow,
You are the sauciest I know;
Reflect, these lovely summer days,
Upon the folly of your ways.

Whispering to a sweet snowball
That nods beside the garden wall,
Then smiling with coquettish eyes
At bees and birds and butterflies.

In garden, or in woodland grove
I find you, if I chance to rove;
You turn, you swing, you bow and sway
'Mid fragrant breezes all the day.

Low sinks the sun in crimson skies,
The wild birds sing sweet lullabies,
And twilight shades and shadows fall,
As evening hovers over all.

When day is wrapped in dreamy night,
And lovers walk in pale moonlight,
I think their secrets you divine,
Oh! saucy, fickle Columbine.

N. H. C., Cambridgeboro, Vt.

THE MOON FLOWER.

In waning summer's lengthening night there gleams
The moon flower's disk from out its tangled vine;
Methinks 'tis sent to prove that fair spoke line,
"Purity is power," for who beholds but deems
That here is power, when, like magician's dreams,
The bud unfurls, and ere one can opine,
Lo, is the perfect flower—a thing divine;
While fragrance, as a benediction, streams
From out its gentle heart. And who but feels
That here is purity, since it wears the white
Of innocence, and sheds afar a light
Over the gloaming world. And see, night seals
It as her child, and moulds with loving care
Its form serene, in semblance of a star.

A. R. E. L.

JOKEY CLUB—MUSHROOMS.

I wish to ask if Jockey Club and *Mirabilis longiflora* is the same thing, or is the seed of the *Mirabilis* brindled and bottle-shaped, while that of the Jockey Club is round and black?

I wish also to ask about mushrooms. Somewhere, during the winter, I have read an article about mushrooms on lawns. The idea—not a very clear one—seemed to be that a crop of them could be obtained, each year, from a lawn. Of course, the lawn would have to be left in the rough while the crop was growing, and when this was gathered, I should suppose the lawn mower would destroy the next year's crop. And then, can a lawn that is left in the rough be called a lawn at all, or is it not simply a hay field? But, if one had the hay field, and wanted the mushrooms, it might be worth while to know whether the two could be raised together to advantage.

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Farther, I am anxious to learn something about the sponge mushroom. It used to grow very abundantly in this region, and a few are still found occasionally in a grove near us. It is said to be the most delicious form of the mushroom, and the only one for which there is no danger of mistaking a poisonous plant. Is it ever cultivated, and can the spawn be obtained from the wild plant? Is it morel? I should think it might be, from the globose, honey-combed head.

H. E. G. AREY.

We trust that any one who knows to what plant the name Jockey Club is applied will send us the information. It is a new name to us among plants, except that we have heard Heliotrope referred to as Jockey Club, on account of the similarity of its odor to that of a popular perfume, so called.

Mushrooms cannot be raised on a lawn—nor even on a lawn left to "go to grass." The growth of mushrooms at irregular times on favorable pasture grounds is one thing; to succeed in raising them, when desired, on a piece of grass ground is another and very different one. The principles of Mushroom culture are well known and must be observed and applied in order to meet success.

The morel, which is the sponge mushroom inquired about, *Morchella esculenta*, is not cultivated or propagated artificially, although it might be, if so desired. The spores could be collected by taking some of the surface soil where the fungus is growing, and by transferring this to a suitable bed, might be germinated. But all the particular conditions necessary to be observed to produce the desired result are not well known; experiment only would bring them out and make them understood.

WATER CRESS.

This useful salad plant is not yet much cultivated in this country. A few amateurs raise it who are favorably situated for it, but its natural restrictions are such that it can never be widely grown. A good account of the plant is found in *WILSON'S Rural Cyclopedia*, and affords all the information necessary for the in-

teilient cultivation of it. After stating that the plant is perennial, and giving a description of it, etc., the following are the cultural directions :

The places most suitable for growing it are gently flowing rills, with a gravelly or chalky bottom, and with from one and one-half inch to four or five inches depth of water; and if only muddy bottomed rills are available, the mud should be removed from them and gravel substituted. The plants are propagated by division of the root; and require to be cleaned, lifted, and replanted twice a year. The plantings and removals should be done in successions during May and June for affording supplies of salad in August, and during September, October and November for affording supplies in spring. The plants should be set in rows, commencing as near as possible to the sources of the stream; and the rows should be about eighteen inches asunder in shallow rills, and from eighteen inches to seven feet in deeper ones. In every process of cleaning and renewal, all weeds, mud and rubbish should be cleared away; and in the accompanying process of replanting, all the youngest and best rooted cresses should be selected for use, and each returned into the stream and retained in its proper place with a stone; and during winter, crops in even the shallowest streams should be so managed in the cutting as to impede the current to a sufficient degree to maintain it at a depth of four or five inches. Gatherings from the plants should be done always by cutting, and never by breaking; and, in a favorable situation, with a good set of plants, may be made as often as once a week. The cuttings should be very close in summer; and after the plants have been cut about three times, they begin to stock, and may thenceforth be cut freely and often.

VICK'S CAPRICE ROSE.

The above rose promises to make up for its shortcomings last summer, and is now in bloom. This is on a budded stock, the buds taken from the little plant received last year. That it is a novelty and different from any other rose we have is only a part of its value, as it is very handsome, and has a peculiar delicious fragrance. I just brought into the house one of this, a Marechal

Niel, a fulgens, and a white and red rugosa in a bunch, and it was a pleasure to notice the delight with which my wife and daughter looked upon them. Soon we will have a dozen or more varieties in bloom. Who would not have roses? No other flower has the charm for me that this has. I still contend that to have Marechal Niel in perfection it must be budded upon some hardy, vigorous stock. There are roses on my bush that will measure five inches in diameter, and as perfect in form as this rose ever gets. A hardy rose of its quality that will bloom the whole summer would be a treasure to the lover of flowers, but whether it will ever be produced is the question.

The late frosts, a hail storm, and too much rain while in bloom have made the prospect for a fruit crop rather slim in these parts. S. MILLER, *Bluffton, Mo.*

TROPICAL BEDS.

We had a semi-tropical bed, last year, which was arranged a little out of the ordinary method, and served its purpose well; that purpose being to get into one bed the large plants we wished to cultivate. In the center was one of the tall red castor beans, and directly in front of it a datura in the midst of a half circle of huge caladiums, which formed the front of the bed. The same circle, in the rear, was filled with red and green cannas, alternating with jockey club and a few plants of perilla, which helped to support or hide the arms of the jockey club. Among these, two or three plants of nicotiana perfected their beautiful blossoms, out of sight. Of course, some trimming was needed, the bean being confined to one stem until it had overtopped the plants in front, and the branching arms of the datura and jockey club being cut in where it was necessary. These arms detracted somewhat from the usual stateliness of a semi-tropical bed, but the flood of fragrance poured out every evening from the jockey club more than compensated for this, and the datura sometimes gave us as many as thirty-six of its great lily-like blossoms of an afternoon. People often stopped in passing to ask what lily that was, not recognizing, in the position it held, its plebeian kinship. The whole bed was surrounded by a matted mass of golden feather kept low and compact, while in front were some plants of

Oxalis Deppii, one of the loveliest things to be found for a border, but the caladium soon overwhelmed them. The perilla could be decidedly improved upon by using some upright coleus, or, better still, by using enough cannas to stand guard over the out-stretching jockey club. I think we had seven or eight last year. This summer we shall put in more. I do not see why the gladiolus would not alternate finely with cannas. We have always kept them separate, but this year we intend to use them to surround a fine bed of hollyhocks.

H. E. G. AREY.

CARNATIONS FOR WINTER.

In answer to the request of JOSEPHINE BIDWELL, in the February number of the MAGAZINE, I give my method of growing carnations for winter. In the spring I buy mailing-sized plants of varieties wanted, and keep them in small pots until warm weather comes, when I plant them out into the open border where I let them remain until the first of September. The soil is rich and is kept mellow and free from weeds. If the soil around small carnations is allowed to become hard and packed, they make but a feeble growth. Plants that grow fast, if untrained, are often lop-sided and misshaped, or at other times tall and spindling. To overcome this tendency, nip out the center of each plant when six inches high. Side shoots will at once start and these in turn should be pinched back two or three times during the summer to within four or five inches of the main stems. This pinching back keeps the plant from exhausting itself in bloom buds, and also encourages a bushy, compact growth, which enables it to bear more blossoms than a plant of thinner growth, while it is, at the same time, more graceful, its strong branches bearing their load of flowers without drooping under their weight. Such a plant is full of health and vigor, and will cover itself with bloom for months if given half a chance.

By the first of September the plants should be taken up and potted. If the ground has been kept mellow and they are carefully lifted, they can be taken up with the loss of but few roots. The carnation can be grown in pots or boxes as most convenient; but as it is quite im- pa-

tient of stagnant water, if tin cans or boxes are used in place of the ordinary pots, an inch layer of charcoal or broken crocks should be placed on the bottom for drainage. I generally add one-fourth sharp sand to the potting soil for the same reason. I have always used leaf-mold to pot my carnations in, as it is rich in plant food and does not pack hard in the pot. If leaf-mold could not be procured I would try ordering loam enriched with a little—say a fifth part—well rotted manure made perfectly fine and mixed evenly through the loam. After potting I water enough to wash the soil well around the roots, then I put the plants in a dark closet a couple of days, then bring gradually to the light. So treated they scarcely receive a check in growing, and are soon in bud, continuing in bloom through the winter.

In spring the plants are again planted in the border, and this time are allowed to bloom to their heart's content, as they are not to be used for the house the second winter. In setting them out I trim off a number of slips. Some of these I root in sand—they root rather slowly—and some I half bury in the ground beside the parent plant, and the majority of these take root also. Sometimes, where the old carnation has long lower branches, I cut slanting gashes two or three inches apart on the under side of the stem and peg the stem to the ground, covering with dirt afterward. As the stem is not entirely cut in two some sap still flows through the branch, a callous soon forms over each cut place, soon followed by a mass of roots, and vigorous shoots are pushed up from the buried stem. In whatever manner rooted these young plants are now the ones that must be looked to for next winter's bloom, and the thirstiest ones must be given every advantage and trained as before directed. The room in which my plants are kept is also heated by a fire-place, so Mrs. BIDWELL will see that the conditions of my room and hers are about the same, and I have never failed any winter but last to have an abundance of bloom from my carnations. This fail our carnations were potted all right, but during an absence of several weeks our plants were left in the care of an inexperienced person, who watered every carnation to death before we came home. Thus, the first week of

October found us with no prospect of winter carnations. We knew the old plants were too exhausted to bloom again in the house, so we cut off good bushy slips and rooted them as quickly as we could, giving them the full benefit of the sunniest part of the bay window, which favoring they have never had before. To-day, February 8th, a close examination shows three plants swelling for buds, but it will be quite a while yet before they will be in bloom. This little experience shows plainly that no flowers need be looked for with small or poorly rooted plants, and shows the importance of preparing for winter's bloom by promoting a strong healthy growth the summer before.

As to the best varieties, with the amateur, this is mostly a question of personal taste. The carnations, like others of the *Dianthus* family, has often a radiant glow of petals, that in the dark maroon and scarlet varieties is fine indeed. To my taste the white and yellow carnations are not as beautiful as the delicate pinks and deep, rich scarlets. The most profuse bloomer I have ever had is the *Seawan*, and the next best the *Sunrise*. But there are many other fine varieties too good to be omitted.

L. S. L. M.

A LITTLE GARDEN IN JAPAN.

The following is from JOHN LA FARGE'S "Letter from Japan," in the June *Century*:

You have heard of the little gardens, and of their exquisite details, in which the Japanese makes a little epitome of nature, arranged as if for one of his microscopic jewels of metals, ivory or lacquer.

Here in our garden there would seem no call for an artificial nature. The mountain slope on which we live must always have been beautiful of itself; but for all that, our garden—that is to say, the space about our landlord's house and our own—has been treated with extreme care. Our enclosure is framed toward the great temple groves, and the great mountains behind them, by a high wall of rock, over which, at a corner edged with moss, rolls a torrent, making a waterfall that breaks three times. The pool below, edged with iris that grow in the garden sand, is crossed by a bridge of three big flat stones, and empties secretly away. On each side of the fall, planted in the rock

wall, stands a thicket of paulownia, with great sturdy leaves, and bending toward it a willow, whose branches droop far below itself and swing perpetually in the draught of the waterfall. Bunches of pink azalea grow in the hollows of the rocks, and their reflections reddens the eddies of the pool. Steps which seem natural lead up the wall of rock; old pines grow against it, and our feet pass through their uppermost branches. On the top is planted a monumental stone, and from there a little path runs along, leading nowhere nowadays, as far as I can make out. I am right in calling this mass of rock, which is a spur of the mountain's slope, a wall, for I look down from its top to the next enclosure far below, now overgrown and wild. What is natural and what was made by man has become so blended together, or has always been so, that I can choose to look at it as my mood may be, and feel the repose of nature or enjoy the disposing choice of art.

THE LAST WINTER.

Here, in Central Pennsylvania, we had throughout the winter, with the exception of one night, March 7th, just such weather as is common at the same season on our northwest coast and in the British islands. Southerly and easterly winds were almost constant and enveloped us in Gulf Stream fog. No ice formed fit to store, and there was no sleighing but for a day or two at a time. Early blooming shrubs were half open in February, the Japan Quince, for instance, was all red with its flaming flower buds. Grass was green, and all sorts of trees and vines that open their buds early were as forward as usually in April. One cruel brief snap of -10° came suddenly on all this promise with disastrous effect. It lasted only a few hours, and was the only severe cold of the winter, the two mornings following it being, although cold, eighteen degrees milder.

We had little or no bloom on any of the early shrubs. I did not see a single pear blossom this spring; of quinces even there was but one here and there; plums scarcely any better. As for peach trees, they are a wreck, and, like grape vines that were not laid down on the soil surface, they open growth only on a bud here and there. Cherry trees, which ripen their growth firmly early in the

season, and are not so easily disturbed in their winter sleep, showed some bloom, and there will be some fruit of the acid kinds. Here and there a few apples—very few. Predacious insects will, of course, unite their forces to consume the little tree fruit that set. Small fruits are as promising as usual, or more so. The wet, mild May, which has passed without any injurious frost, has favored the strawberry plants, and blackberry and raspberry hills are handsomely covered with bloom.

W.

DON'TS FOR AMATEURS.

Don't plant seeds as small as the eye of a needle, such as petunia and portulaca, under an inch of soil. They should be merely covered, and that with soil as fine as you can make it.

Don't pour water on plants or flower beds out of a pail, or a dipper, or any thing else; use a sprinkler or a hose with a fine spray.

Don't let any one make you believe that luck has anything to do with success in cultivating flowers. It has not, unfailing watchfulness and industry, with a mixture of common sense, is worth all the luck in the world in flower gardening, as in other things.

Don't begin with high priced novelties, or failure will most likely attend your best endeavors. Select for your first venture kinds and varieties of flowers and plants most easily grown. Any friend who grows flowers can tell you what these are.

Don't fuss too much over your plants, they like to be let alone when they are doing their best, and so do you.

Don't follow everybody's advice. Select some good authority on plants and be guided by it. Above all, don't "try everything" to make your plants grow. Nothing will kill them sooner than persecution of this kind.

Don't let failure dismay or discourage you. One must serve a sort of an apprenticeship in flower growing as in other occupations. Study your climate, your soil, the location of your flower beds, and the kinds of plants particularly adapted to your locality.

Don't do as the lady did who said that she watered her plants regularly every Wednesday and every Saturday, whether they needed it or not, because she be-

lieved in having "a regular system for anything." Water your plants when they need water, and at no other time.

Don't be too eager to buy seeds and plants where you can get them the cheapest. The best is always the cheapest, and you cannot get the best for nothing or for half price. I once had a bare, ragged, sickly looking flower - garden all summer, as the result of an experiment with cheap seeds and plants.

Don't think you can't have flowers because you haven't half an acre of garden. Wonders can be done on ten square feet of ground, and I once saw a flower garden in an old washtub, that was a thing of beauty from June until October.

Don't be stingy with your flowers after they have come. Give them to the poor, the sick, and even to those who love flowers, but cannot have them because of living in blocks or flats, or boarding.

J. L. N., *Dorchester, Mass.*

SCHIZANTHUS—PENTSTEMON.

Will you give the proper treatment of Schizanthus and Pentstemon?

J. A. M. J.

The Schizanthus is somewhat tender, but there is no great difficulty in using it as a garden plant if the proper place is selected for it. The plant is so slender in its growth that the winds and heavy rains often injure it, and it is better if, in some degree, it is sheltered from the sun in the middle of the day during the hottest weather. Probably it is more satisfactory as a greenhouse or window plant, and as such it is very interesting and beautiful. It blooms abundantly, and is an excellent basket plant. It is easily raised by sowing seed in the early spring in the house, and potting off the young plants, or pricking them out into boxes.

The Pentstemons are hardy native perennials, and are easily raised from seed sown either in fall or spring. The plants should be given a piece of good rich ground and be well cared for, and they will not fail to bloom satisfactorily, commencing the second season.

DUTY ON SEEDS.

A cotemporary journal gave as an answer to an inquirer, last month, that an "import tax of 50 per cent. *ad valorem* on most garden and flower seeds" is now charged.

This is an error. The duty on garden

seeds, that is, vegetable seeds for the garden, is 20 per cent.; flower seeds and agricultural or field seeds are free.

The tariff bill now before Congress proposes to make the duty 40 per cent. on most garden and field seeds, while flower seeds remain free.

GARDEN QUERIES.

When preparing soil for pot flowers I take two parts soil, one part sand and one part cow manure. Does this form the most suitable soil for growing Chinese primroses, carnations, begonias, petunias, geraniums and sweet alyssum? Would dirt from a decayed stump be as good as sand? At what time of the year should the seed of primroses and carnations be sown so as to bloom in February or March? Also, how to cultivate them, and about what size pots would they require? About what temperature should they be grown in?

How to treat Tea Roses so they will bloom in early spring, when grown from slips? Would you name the best yellow and pink Tea Rose for winter blooming?

How to cultivate Upland Cress?

How are hyacinth bulbs multiplied?

When Chinese primrose roots are divided and repotted, do they form as good blooming plants as when raised from seed? When should they be repotted?

A SUBSCRIBER.

The soil described will do very well for most soft-wooded plants. One part of leaf-mold might be added to advantage. "The soil" of which two parts are used should consist of rotted sods. Plant growers should bring together, every year, a pile of sods to rot and form suitable loam for a soil mixture for their plants. The sods can be neatly piled up and left until late autumn and then the pile turned, and then by spring the soil will be right for use.

Primula and carnation seed ought to be sowed in February or March in order to get strong plants for the next winter's blooming, though skillful cultivators often bring them on in a shorter time.

Take a flower pot and fill it a third full of bits of broken pots, and then fill it up nearly full with soil made of one part leaf-mold and two of light loam. Water it and then sow the seed of primula carefully on the surface and sprinkle a little fine sand over it. Cover the pot with a pane of glass. The seed will germinate in two or three weeks.

Carnation seed can be sown on the same kind of soil, but should be covered a quarter of an inch deep. Cover with a pane of glass. A temperature of 50° to 60° is proper. The little plants can be

put into small pots and then shifted into larger ones as their growth demands.

All that is necessary for Tea Roses to bloom is that they shall grow. Secure growth and bloom will come. Catharine Mermet and Perle des Jardins are among the finest yellow and pink Tea Roses.

Hyacinth bulbs are multiplied by arts practiced by the Dutch gardeners, which, though pretty well known, cannot be taken advantage of by others on account of a lack of the soil conditions that are peculiar to Holland.

Chinese Primroses propagated by division can be grown into fine plants. The division should be made in spring, after the blooming season is ended.

Under the name of Upland Cress two species of *Barbarea* are sometimes cultivated. These are *B. vulgaris* and *B. præcox*, the latter is considered the best. There is no trouble in raising them, the seed sown in the garden will quickly germinate, and the plants need only to be kept clean.

GLADIOLUS AND FUCHSIAS.

I would ask how to treat gladiolus, and whether a large or small pot is best for the fuchsia, and whether it requires much heat as well as light?

J. F. D.

The gladiolus, after the leaves turn yellow, in autumn, can be taken up before frost comes; the bulbs should be laid in a dry, shady place for a week or more, and then they can be placed on a shelf or in a drawer where there is no danger of frost, and there be allowed to remain until it is time to plant them out in the spring.

Whether a fuchsia wants a small or a large pot depends on the size of the plant—if a small one, a small pot will do until it becomes larger and fills the pot with roots, when it can be shifted into one a size or two larger. In the growing stage the fuchsia wants heat, light and moisture—a warm, moist atmosphere it delights in.

CURL LEAF.

The "curl leaf" has been very prevalent on the peach trees the past spring, in this region; the wet weather evidently being favorable to the development of the fungus. We have noticed that the leaves of the black oak trees

were almost universally affected this season by some fungus very similar to this *Ascomyces deformans* of the peach. The leaves appeared as if blistered, in the same way as those of affected peach trees. If the native forest trees thus suffer from excessive moisture, it is not strange that our exotic fruits fail to maintain a health standard.

BEGONIA LOUIS BOUCHET.

Please tell the care of Begonia Louis Bouchet after it has bloomed.

G. W. H.

The plant should have the necessary attention as to water, and be kept in thriving condition until autumn, when the water can be gradually withdrawn, and the bulb allowed to ripen. During winter keep the bulb in dry sand or leaf-mold in a place free from frost.

AN EXPERIMENT WITH ONIONS.

A bulletin lately issued by the Agricultural Experiment Station of the University of Minnesota, makes a very interesting report of an experiment conducted for two seasons by the horticulturist, SAMUEL B. GREEN, to show whether a compact or mellow seed-bed was best for the onion.

"A piece of level, open, clayey loam was laid off 100 x 75 feet in size. It was, in appearance, of very even consistence and had been cultivated in onions for two years previous to commencing this experiment. The land was originally in oak timber; was cleared up, cropped with wheat until it failed to produce remunerative crops, and then, after coming into the control of the Station, was heavily manured, and used for garden purposes. In the spring of 1888 the land had not been plowed since harvesting the onions the previous season, and was, of course, very compact. One-half of the piece was plowed seven inches deep, and the other half was treated to a thorough harrowing with a disc harrow. The whole piece was then smoothed off, and sown with Yellow Danvers onion seed, in rows fourteen inches apart, putting about eighteen seeds to the foot of row. Care was taken that each half should have the same number of rows on it. The crop in 1888 was a large one, but there were many green necks in it. The results show that the plowed land had more green, poorly capped onions on it,

and also fewer total bushels of onions than the portion only harrowed. But such an experiment, conducted for only one year, is not sufficient basis for drawing definite conclusions. With the purpose of carrying this further, and proving the point in question, last season the conditions of each plot were reversed, *i.e.*, the half which was plowed in 1888 was harrowed in 1889, and the half that was harrowed in 1888 was plowed in 1889; the other conditions being the same as in 1888. It will be remembered in this connection, that the season of 1888 was very wet, while 1889 was very dry.

"The yield this year has again demonstrated that the most and best onions can be raised on a compact seed-bed."

The results of 1888 showed on plot 1, which was only harrowed, 1168 pounds of dry onions, and 897 pounds of poorly ripened onions, or a total yield of 2065 pounds.

Plot 2, which was plowed and harrowed, gave 907 pounds of dry onions, and 962 pounds of poorly ripened bulbs, or a total of 1869 pounds.

The planting of 1889 gave, on the plowed and harrowed plot, 2365 pounds of dry onions, and on the plot which was only harrowed 2854 pounds.

Thus, in one year there was 196 pounds, and in the other 489 pounds in favor of the ground that was only harrowed. By taking the average of these two seasons and calculating for an acre it is shown that there is about 70 bushels in favor of the shallow worked ground."

The report concludes by saying:

"Another point of interest and value lies in the fact that both years the weeds were much the most numerous on the half which was plowed. It may be questioned if I would advise the planting of land to onions continuously without plowing? To this I would reply that it would probably be best to use the land two years without plowing, and then to plow as soon as possible in the fall after gathering the crop. By plowing thus early, the land would have an opportunity to become compacted by the fall and spring rains and snows."

If these experiments are conclusive, and onion ground can be thus easily prepared, merely by harrowing in the spring, it will materially help onion seed sowing as well as increase the yield.

A FLOWER-PIECE.

The illustration herewith is that of a design of a lyre exhibited at the show, last year, of the Horticultural Society of Hamburg, Germany. The outline or form of the lyre was composed of the single flowers of the gilliflower, chestnut-brown in color. This dark background



A FLORAL LYRE.

was relieved by light colored flowers in front, such as *Lilium auratum*, *Lapageria alba*, *Eucharis Amazonica* and a few roses. *Clethra arborea* formed the strings. A skillful use of *Asparagus tenuissimus*, *Pteris cretica* albo-lineata and *Adiantum* added grace to the piece, which was greatly admired. The illustration is after the *Deutsche Gärtner-Zeitung*.

NOTES ON CUTTING - GROWING.

The method of growing cuttings of soft, herbaceous plants by putting small tips of the tender growth in a saucer of clean sand and water, and placing them at once in full light to make roots and become independent before their growth is

checked by any wilting, is now so generally known for its ready success and feasibility as to be a general practice with lovers of window plants. The case is quite different with woody plants. In these the woody interior loses its vitality after the year in which it was formed, but it does not lose the power of absorbing water freely, and when young is quick to pass into decay wherever exposed to air with moisture. Its wounds, however, will film and heal over slowly if protected sufficiently long from those causes of decay.

To grow cuttings of woody plants it is best, therefore, to anticipate the customary spring season for making them, and to take them off in July or August, when the wood is only half ripe, letting the leaves remain on and covering with glass to preserve even moisture constantly, so that the leaves may not wilt, and to prevent excess of moisture. The cuttings should be set in fine, sandy mold pressed very closely to their bases. There should be shade enough to prevent the full sunshine from striking on the glass. A hole in the ground, in a naturally dry, sheltered place is better than a surface bed, because it is evener in temperature,

and more safe from wintry inclemencies. Some easily rooting plants will be well rooted before winter, but many will not show roots till spring and must then still be preserved for a month or so from excesses of heat and moisture and from parching wind.

In this way most of the sorts of ornamental shrubs can be easily grown, having the advantage of even conditions through many months. Gooseberry and willow plants of most sorts grow readily if set in spring, but the new, fine English gooseberry, the Industry, and the Kilmarnock willow will not oblige us in that way, yet half ripe, leafy shoots of them set in August grow readily. The calycanthus, or sweet-scented shrub, is an-

other very refractory thing that scarcely bears spring transplanting, but a broken-off young sprout with two or three incipient roots, accidentally set with cuttings in a little pit—a mere hole in the ground—in August, never wilted in the least, here, last season.

W.

NURSERYMEN'S CONVENTION.

The annual meeting of the American Association of Nurserymen was held in the city of New York, from June 4th to 6th. Some two hundred members were in attendance, and also representatives from Great Britain, France and Holland.

The President, GEORGE A. SWEET made the opening address, reviewing the condition of the nursery business, and concluding that it was less profitable than formerly, but that it still yields a moderate return for the capital and labor invested and promises to continue to do so.

The Hon. H. E. VAN DEMAN, Pomologist of the Department of Agriculture, was present and entertained the meeting with a talk on new fruits. The Burbank, a new California plum, was recommended to the attention of nurserymen and fruit-growers. Some of the Japanese Plums were considered. *Prunus Simonii* produces small fruits and of poor quality. The Lyon grape was recommended; resembles the Delaware, high flavor. The Krull pear, which originated in Missouri, Mr. VAN D. thought the best winter pear he had ever seen. The Idaho, he says, is all that has been claimed for it. Like Duchess in size and shape. The Crandall currant was considered valuable.

Mr. MEISNER, of Bushberg, Missouri, read a paper deprecating the very early digging and shipping of nursery stock in the fall. The trees are dug before they are properly matured, and are therefore unfitted to stand the cold of winter.

A number of other valuable and interesting papers were read, and the meeting proved a very successful one.

The following are the officers elected for the ensuing year: President, S. M. EMERY, Lake City, Minn.; 1st Vice President, J. VAN LINDLEY, North Carolina; Secretary, CHARLES A. GREEN, Rochester, N. Y.; Treasurer, A. R. WHITNEY, Franklin Grove, Illinois.

The next meeting is to be held at St. Paul or Minneapolis, the choice being left to the Executive Committee.

GRAPE-VINE TOMATO-GALL.

The tomato-gall, as it is called, has been noticed as somewhat numerous in some of the vineyards. They are formed at the nodes of the young shoots and on the flower buds before blooming. SAUNDERS, in his valuable practical work, *Insects Injurious to Fruits*, says: "These galls form a mass of irregular, succulent swellings on the stem and leaf-stalks of the grape-vine, very variable in size and shape, from the single round, cranberry-like swelling to the irregular, bulbous protuberances which look much like a group of diminutive tomatoes. They have a yellowish-green exterior, with rosy cheeks, and sometimes are entirely red; the interior is soft, juicy and acid. Each gall has several cells, and in each cell there is an orange-yellow larva, which, before the gall has entirely decayed, enters the ground, where it changes to a chrysalis, and finally emerges as a pale-reddish gnat, with black head and antennæ, and gray wings.

"The larvæ are liable to be attacked by a parasite, and also by a species of thrips, which invade the cells and destroy the inmates."

Whenever these galls are seen on the shoots or flower clusters they should be gathered and destroyed by burning, to prevent any increase of the insects. If they should ever exist in large numbers it would be possible for them to do great damage before they would be noticed.

WEATHER AND CROPS.

Up to the present time, June 16th, the weather in this region has greatly retarded all gardening and farming operations, as the rains and showers have been so frequent and so heavy as to leave but little time for work to be done on the land. As one consequence many intended crops will go unplanted, and as another, vegetables will nearly all mature late. The wet weather has somewhat injured the strawberries; raspberries and b'ackberries look very promising. The crop of peaches, pears and cherries in Western New York will be light. The condition of the apple crop is not yet fully known, but we hope it may be a good one. Vines are growing very strong, and the prospect of a grape crop is good, unless continued wet weather

shall cause the spread of mildew and rot, which is very much feared at present.

Lawns are in splendid condition, never lacking moisture; perennial plants and flowering shrubs never showed to better advantage than this season, though the flowers are frequently spoiled by the heavy rainfalls. The irises and perennial poppies, and columbines and pyrethrums, and hemerocallis, and dodecatheon are in grand display up to the present time. The English primroses and auriculas, which have now passed out of bloom, were never seen finer.

Roses commenced to open on our grounds on the 12th, the first one to appear being that excellent old standard of crimsons, Alfred Columb. The prospect is for a splendid show of roses. The plants appear perfect, and without injury from insect or fungus, and are filled with buds. If we can get enough fine weather for the flowers to open the blooms must be fine. This is one of the compensations for the many disadvantages of an excess of water. But it may be noticed that the garden well supplied with perennial plants, shrubs and roses has already, in this climate, had from two to three months of bloom by the middle of June, while those dependent on summer plants are yet without color.

JULY IN THE GARDEN.

The lawn will need frequent clipping where the rainfall is as great as it has been here and along the Atlantic States, this season. Plants, like the dahlia and gladiolus, etc., that are apt to become top heavy, especially in moist times, should be suitably supported with neat stakes. Cultivation, this month, will be the great demand both in the flower and the kitchen garden, and the frequent stirring of the soil by the hoe or the cultivator will be the great means to send the plants ahead, and if the weather should be dry the value of stirring the soil is far greater.

During this month beans, corn and lettuce can be planted for succession, and the main crops of celery, cauliflower, late cabbage and turnips can be got in.

Stake up the tomate plants as they increase in size, and keep the fruit off the ground, it will ripen quicker and be better for it.

A great many kinds of garden and

house plants can be propagated this month from cuttings, layers and seeds. Many kinds of perennial seeds will germinate best if sown as soon as ripe. This is especially true of perennial phlox, which it is difficult to get up if kept long after maturing. The pot plants should all be carefully attended to and their growth regulated, and watering looked after—whether they are still in their pots or have been turned out.

The fruit-grower has his hands full with cultivation, marketing and preparing to market his fall produce. Well grown and well ripened fruits, honestly and neatly packed will be sure of a fair market.

FUNGICIDE IN VINEYARDS.

Some vineyardists who have attempted spraying their vines with eau celeste have found a difficulty in dissolving the copper sulphate. It must be remembered that the sulphate should be placed in hot water to dissolve. One party informs us that only by keeping the boiler on the stove and keeping up the heat could he dissolve the substance. If that is so, it is well to be understood.

The ordinary form of eau celeste is thus given: Dissolve one pound of sulphate of copper in three or four gallons of hot water. When the copper salt has completely dissolved and the solution cooled, add one pint of liquid commercial ammonia, dilute to twenty-two gallons.

Now, one party comes and informs us that he poured the ammonia into the copper solution and it curdled so that he could do nothing with it. Perhaps some one who has had experience with the mixture may explain why this should be so. To avoid the curdling, the party reduced the sulphate solution with several gallons of water and then mixed in the ammonia.

For the first application to the vines the mode of preparation is advised as in a note in Bulletin No. 5 of the Section of Vegetable Pathology, Department of Agriculture: Dissolve one pound of sulphate of copper in a gallon of hot water; to this solution add the liquid ammonia, a little at a time, until all the copper is precipitated; the liquid is then turbid and blue in color. Add two or three gallons of water and let stand to settle. Pour off

the clear liquid, which contains sulphate of ammonia—the compound which causes the burning of the leaves. Then pour upon the precipitate left in the vessel just enough liquid ammonia to dissolve it. The result is a clear liquid of a beautiful deep blue color. When required for use dilute to twenty-two gallons.

After the vines are in full leaf the mixture may be prepared in the ordinary manner.

MY PRIZE CHRYSANTHEMUMS.

I had two thrifty plants and took them in hand, last summer, determined they should rival the wonderful specimens described in the floral magazines, and had laid out, in my mind, what should be done with the five dollar prize offered for the best plants grown by amateurs at our fall exhibition. I "pinched" and stimulated. When the poor things broke all over with buds, these were pulled off, leaving only three on each plant. The flowers from these were to be as large as saucers. The three lonely buds left on the plants blasted, and I didn't have one flower. Down came my hopes of that five dollars, and that I should be the envy of the neighborhood. The two plants were thrust down cellar, left to themselves in contempt, and in the spring each sent up a half dozen lusty sprouts. I have potted them, placed them in a sunny window, where they are growing like Jack's bean stalk. I shall not pinch or prune or stimulate, and every bud shall be left on. They probably will not be specimen plants, but they can't turn out worse, and may be an improvement on my prize chrysanthemums.

SISTER GRACIOUS.

ABUTILON GOLDEN FLEECE.

This is probably the finest yellow abutilon ever produced. The flowers are large, of fine form, a clear yellow, and suspended by long, slender peduncles. The plant is a good, thrifty grower and free bloomer. It makes a valuable plant for the greenhouse or window, is of easy culture, so that those who know little or

nothing of house plants can hardly fail to succeed with it. The wooly aphis sometimes infest the abutilon when they are neglected, but plants which receive ordinary care can be kept free from this pest as well as all others.

A NEW WEIGELA.

Under the name of *Diervilla Middendorfiana*, the *Gardeners' Chronicle* figures and describes a new species of weigela, with "sulphur-yellow blossoms, gloxinia-like in form." It further adds that in beauty it is not excelled by any of the genus. The history of the plant is not given.

*WHEN STRAWBERRIES ARE RIPE.

O, dear, delicious berries! Did you stray
Over this earth from Eden's fresh green slopes,
Eager to come ere sweet spring goes away,
With your rich earnest of the summer's hopes?
First fruit, and best, your crimson hearts must hold
Beautiful idyls of the days of old,
When strawberries were ripe,

Of Roman maidens, seeking you with song,
Their crimson lips still brighter for your wine;
And white-robed vestals in a joyous throng
Laying the first fruit on some household shrine;
Or Latin children, in their splendid grace,
Holding green baskets in Rome's market-place,
When strawberries were ripe.

Perchance you dream of Athens, white and fair,
Her busy markets redolent of flowers,
Her veiled matrons, and her maidens rare,
Her proud, keen men, beguiling the long hours,
Eating ripe berries in the porticoes,
While Ægean winds were scented with the rose,
And fragrant strawberries;

Or sunny vistas in some English wood,
Before the Roman legions knew the shore;
When white-robed Druids blessed the fruit as good,
And painted warriors ate the dainty store;
Or fair-haired Saxon girls, with eyes of blue,
And kilted kirtles, sought among the dew
For ripe, wild strawberries.

Now I have raised so many pleasant shades,
I'll spread my feast, and bid them eat with me;
Roman and Greek, Celtic and Saxon maids,
My sweet, fresh berries ask your company.
The centuries do not part us, we will meet
When clover blooms make the ripe grasses sweet,
And strawberries are ripe

LILLIE E. BARR.

* This poem, which has already been published in some other journal, is here reproduced by special request of one of our readers.—[ED. MAG.]



OUR YOUNG PEOPLE.

HOW CYRUS GOT RICH.

IN TWO CHAPTERS.—CHAPTER II.

When the doctor and uncle Simeon arrived, the faithful mill hands were just placing Mr. Drayton on the cot and arranging his position, their unskilled hands very tenderly performing the unaccustomed service.

“Bless my soul,” puffed the portly doctor, “this is bad business. Cyrus, give me a chance at his wrist. Poor boy, I am sorry for you. Let’s see—yes, yes, there’s some pulse; that’s good. Now, what about his head; ugly scalp wound; we’ll let it bleed a little more. No skull fracture—that’s good, too. ‘Doubled up,’ you say? trust his spine is not—. He must be taken to the house immediately and clothing removed. Friend Hunt, perhaps you’ll go ahead and prepare the family.”

Uncle Simeon was himself so grieved and shocked at the condition of his sister’s husband that it was no easy matter to face her with the sorry tidings.

Proctor, from the first, remained day and night near the sick man’s room to render assistance at any moment needed. During one of the intervals of watching and waiting he told Mr. Hunt of Bryson’s neglect of duty and of his absence from the mill afterward.

“The man is often in my hardware store,” remarked Mr. Hunt, “selecting tools for repairing machinery. If we can not wait upon him the moment he enters, he officially goes all about, even to the basement, helping himself. I do not like his face, while his pompous manner is offensive. I suspect he is a bad man at heart.”

Ten days later it was known that Mr. Drayton would live, but that an injury to his spine had paralyzed his lower limbs for life. His family were thankful to have him spared to them upon any terms, yet this was a terrible blow. They knew not how to bear it. But realizing that Mr. Drayton would feel the affliction more on their account than on his own, uniform cheerfulness became the rule of

the house. As for Cyrus, he had seemed, from the first, to forget that he had an existence separate from that of his father’s, so absorbed had he been in his condition. And now, in his overwrought state of mind, this affliction simply meant a cruel, unjust martyrdom of his noble father and financial ruin for them all.

He could see no way now of ever leaving home to engage in business, and the dreams of the future affluence, which was to have set even his father away up, up, and which had long kept himself cheery and light-hearted, faded away.

True, kind uncle Simeon had hinted at a position in his store, as being near home, where he could learn business habits and be learning something whenever he could be spared from home. “Having no son,” he said, “I shall need a partner, by and by, to relieve me of the brunt of business.”

But it was such slow business, Cyrus thought, and to begin as clerk and work up was slower. He had no patience to think of it.

Cyrus seemed to forget that most of the fortunes of which he had read had grown from small beginnings.

While in this mood, the eastern mail brought Cyrus a letter, one day, that took his breath. It read as follows:

[A TRUE COPY.]

DEAR SIR:—Your name and address was given to me by confidential agent, who said he thought you was in a position to handle my goods. My motto is, never harm a man who is willing to prove himself a friend. The Green Articles I deal in are safe and profitable to handle. The sizes are \$1, \$2, \$5 and \$10, and I will endeavor to satisfy you on every point, that, if you are my friend, I will prove a true and lasting one to you. Remember, I want simply to convince you that I am just as I say, a friend to a friend. I remain, yours in confidence.

Address as follows: L. THOMPSON,
Box 64. 54 6th Avenue
New York City.

There is always a first time for every thing. Cyrus, having never before seen a letter of this kind, did not comprehend its significance. But it was easy to understand that a would-be *friend* offered him an opening for making money, just in the nick of time. Doubtless some one, knowing that his father was disabled, and desiring to assist him, had sent on his address. Yes, the post mark was New York city. A mystery, sure, but a golden one.

When next Cyrus was sent from the sick room for rest and sleep, he spent the time, instead, in nervous efforts to write a letter that should seem not only business-like, but properly grateful to his unknown friend.

Finally, he threw himself across his bed, and, falling asleep, dreamed that he had received a package of greenbacks which flashed up in a blue blaze when he opened them, blistering his fingers and leaving nothing but ashes.

With a cry of dismay he sprang up, examined his hands and looked about him. There lay his letter as he had left it. But a feeling of distrust now seized him. "I don't believe in dreams," he thought, "but they might set a fellow to thinking. I can't trouble father with the matter, but I can show this letter and my answer to uncle Simeon, and get his opinion, and I will."

Uncle Simeon read, listened and pondered. "Thee has made a narrow escape, my boy," he said. "The response to thy letter would very likely have promised to send thee five dollars of their spurious funds for every dollar thee should first send to them. Then thee would have had a lot of counterfeit money that would have blistered thy hands, sure enough, before thee had done with it. The penitentiary is hungry for such criminals as the writer of this New York letter."

"Good gracious, uncle, who dared to give the rascal my name for such a purpose? Somebody ought to be thrashed," exclaimed Cyrus.

When Mr. Drayton was finally able to think of business once more, the principal mill hands were notified that he would like to see them. When assembled, and

their hearty words of congratulation had been expressed, he proposed to them that Proctor be made superintendent of the mill work, subject to his own counsel and experience. To this they all readily agreed. He also announced that a certain percentage of the annual net profits of the business would be added to their usual salaries thereafter, the same to be specified and formally written out.

A murmur of pleasure was all the response he gave them time to make, as he added :

"Of course, you understand that we all have different capacities. These capacities were our endowment at birth. Hence, we cannot blame each other for more or for less. All of God's creatures are formed in grades—grades of quality and structure. There are mountains, hills and knolls. There are rocks, stones, pebbles, gravel, sand and dust. Also, trees, shrubs, plants and grasses. So with the animal creation, from the elephant to the smallest insects, all of which are endowed with capacities according to their needs.

"So, in man, we see every grade of intellect. Each man's brain is his original capital. With a strong purpose behind it, he may work it for all it is worth. You know how water will find its level. Just so with brain—naught can hinder it.

"Of two boys studying side by side, in the same school, one may go out and invent a phonograph, while the other, if forced into a line of thought leading to the same result might die in a mad house. The same man following his bent, might have made so good a saddle, or hat, or coat, or cart, or house, or engine, as to have created a demand therefor, and have lived a satisfied, contented life.

"You lately saw how Proctor proved a leader among you—cool headed, skillful and ready with resources; hence you confirm my choice. I thank you."

When Bryson heard of Proctor's promotion (after having boasted that no one understood the business but himself), and could hear of no harm to Cyrus from the New York letter (!) but that instead, he was installed as clerk in his uncle's store, he suddenly disappeared, leaving his trunk as surety of his return.

Cyrus had no long wrestle with the conditions of his new situation. Having made up his mind to it, he went to work

manfully. His father's heroic patience under his affliction made him feel that any line of duty, however irksome, must be accepted by himself uncomplainingly.

For two whole days everything went smoothly; but on the third morning his uncle met him with a grave face.

"Cyrus, I neglected to take the money from the cash drawer, last night, as I usually do," said he. "Did thee take care of it?"

"No, uncle. You was at the desk when I left, and the money was in the drawer then. How much was there on hand?"

"About fifty dollars, I think. Parsons paid twenty-five of it for house fixtures."

"So I thought. Well, it's gone. I find every place of entrance secured on the inside, as usual—have no clue whatever. No one was in after thee left and took thy key with thee. I regret that such a wrong has occurred more than I do the loss of the money. But conscious innocence need carry no burden," he added, noticing Cyrus' troubled face.

Of course, Mr. Hunt could not believe his sister's son to be dishonest, and yet as the days passed by he could find no solution of the mystery. His kind heart reasoned thus: "The boy is young yet; if he is one of those who cannot resist temptation the sooner it is known the better, while he is here under my care. Such knowledge would be still harder to bear were it to come to us through strangers who had suffered by him." So he decided to test the matter. That night, as Cyrus was about to leave, he called him to his desk.

"Cyrus, I shall not be here as early as usual, to-morrow morning. Thee will find an unsealed letter here inside the ledger, containing ten dollars to go in the morning mail. First, buy thirteen postage stamps and slip inside. Then carefully seal it. Don't forget."

"No, uncle," and with that Cyrus left him.

Mr. Hunt felt like a culprit himself the next morning as he watched for Cyrus' return from the post office, and then hastened to the store to say that he should have to see that letter again, after all, and for him to hasten and recall it before the mail should be closed.

Cyrus, feeling annoyed at this request, showed some embarrassment as he

passed out, saying, "I did just as you directed me."

"Yes, yes," answered his uncle, "but I must see the letter again. I've had to recall a letter before now; thee must know that I make mistakes myself, sometimes."

When the letter had been returned and opened the stamps fell out, but no ten dollar bill was there.

Mr. Hunt groaned, while Cyrus, in pitiful self-defence, charged him with having put no money in the letter. At that crisis a customer came in, and Mr. Hunt, saying, "Don't mention this," went to wait upon him.

"If he thinks me guilty," thought Cyrus, "he can't suppose I'd want to tell it. I don't understand him."

After two days and nights of torturing worry, sleeplessness and general unrest, Cyrus broke down and remained at home with violent headache and loss of appetite.

Mothers are shrewd, and Mrs. Drayton soon perceived that his ailment was something more than physical disturbance, but failed to gain his confidence. Why?

Because he could not forget his often expressed determination, in the past, to acquire wealth, and were he now to confide his trouble to his mother, might not even she be haunted with a fear that he had yielded to temptation? His sisters worried him with queries and oppressed him with attentions, while Archie generously offered to allow himself to be teased without reporting to headquarters.

Finally, Mr. Drayton began to notice that during Mr. Hunt's short daily calls, he was careful to inquire about Cyrus' condition, but never asked to see him nor referred to his return to business.

It began to be an anxious mystery all around.

Once, in the dead of night, as Cyrus turned and tossed, utterly wretched, seeing no possible way out of his troubles, the recollection of a desperate boy's deed, of which he had read, flashed upon him, and, as once before, he sprang up in bed. Throwing out a clenched hand, as though defying a foe, he exclaimed:

"Yes, I know I'm miserable; but you, demon of a tempter, you can't tempt me. My father says that among sane people only the weak and the cowards resort to

self-destruction, and that it's a pity they can't realize that, though they do themselves and their friends a great wrong, the world at large is better off without them."

This outburst lessened somewhat his mental stress, and falling upon his knees he asked the good Lord to help him in his trouble, and lay down and fell asleep.

But a crisis was near. Plotters of deeply laid schemes often overshoot the mark.

One evening, Bryson suddenly appeared in the village, saying he should leave the next day to fill a new position. Calling at Mr. Hunt's store, with his old swagger and confident air, he congratulated a former clerk on having regained his old position, adding, with a knowing look, "Mr. 'Unt knows who 'e can trust."

Then, greeting that gentleman familiarly, he made some slight purchases, and while waiting for it, remarked :

"Hi 'ear you 'ad a couple of robberies while hi was gone ; that's bad business."

Mr. Hunt gave a start, letting fall the package he was tying. Then, leaning over the counter, with an index finger pointing sharply into Bryson's face, he exclaimed :

"Yes, I've lost money twice: but I told

not a soul of it. No outsider but the thief knows it was stolen. *Thou art the very man !*"

Bryson began to shake, his face growing purple with rage as he hesitated, and then gasped, "You must be a fool to think Cyrus wouldn't blow it."

"Cyrus fears I suspect him and is glad to keep quiet. Thou hast told on thyself before this clerk, as witness, and cannot elude con—."

But Mr. Hunt did not finish, for Bryson fell to the floor a dead man.

The autopsy revealed heart trouble, though not to a degree to have caused death had the man controlled his temper. In his pocket was found a duplicate key for opening the basement door.

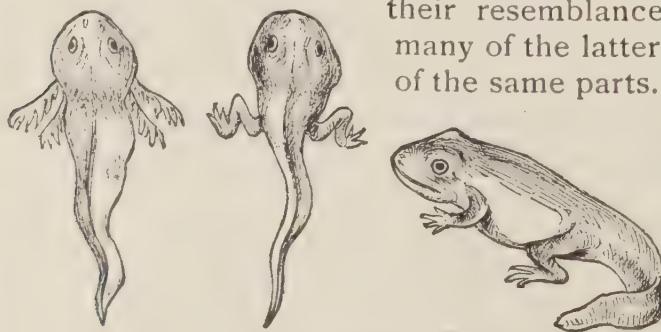
The now wealthy firm of Hunt & Drayton, having made "*slow and sure*" their motto, were still enabled to increase their stock from time to time, without ever taking undue advantage of other men's misfortunes, or indulging in uncertain speculation, which more often wrecks fortunes than makes them. And this is how Cyrus got rich.

Gentleman John almost lives in his library, while Proctor and the enlarged mill are flourishing.

MARIA BARRETT BUTLER.

TADPOLES AND TOADS.

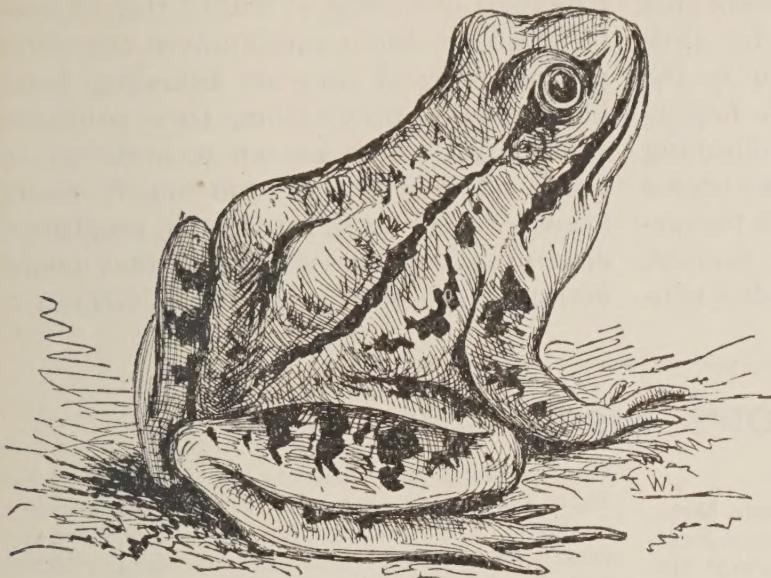
To turn a horse into a cow would justly be thought a most wonderful performance, but a more incredible transformation takes place every year in all the swamps and ponds. The horse and cow both breathe air, and can live on the same food, have a similar coat as a protection from cold, the same number of feet, in short their resemblances are greater than their differences, many of the latter being the varying relative proportion of the same parts. But while the frog and toad breathe air, the tadpole, or polliwog, has gills, like a fish, and eats vegetable food only, the frog is carnivorous. The tadpole swims with a tail fin, the frog has arms and legs very much the same as our own, and has had his spine remodeled; the tadpole is silent, the frog or toad is



TADPOLES IN DIFFERENT STAGES.

one of the noisiest creatures going. An ox with the voice of a hyla (peeping toad), in proportion to his size, could be heard over a whole State, a small one, at least. The frog hibernates in winter, the tadpole is moving about as usual under the ice. The wonderful change from caterpillar to butterfly is far less radical and thorough going, for both are air breathers, have the same number of true feet and a like form and position of the body, we should infer relationship, at least, on comparing the two without knowing the life history. The Indians of Arizona are said to believe the moon to have been made from a frog, because both are cold and the frogs shout

to it every night. Dandelions may bloom in January (as in 1890), and the ponds and swamps be free from ice, while the earth is steeped in warm sunlight, day after day, but toads and frogs never awake till spring, though it seems no warmer when we hear them first, the ice having only just gone. So we wait and listen for them, sure when we hear them that spring is near. The maple sugar maker has a saying, "the frogs will be frozen in three times before they come out to stay," but this is just as it happens. Some years there is not even a white frost after their first appearance. Their voices are eloquent of a new season, they mark a period. Almost before we



BULL FROG.

think it possible, so dead and gray are the fields, we hear the welcome chorus, cruck-a-ruck-a-ruck, the hyla, or peeper, being a day or so later. The hyla could be put into a thimble without much squeezing; his voice is indeed tremendous for his size. There is great difference in pitch and tone among them, but there is only the one syllable; it takes three toads to say, Peter, knee deep, properly. The long-winded cur-r-r-r-r, soon heard, comes from the garden toads who have hibernated where winter overtook them, perhaps with not more than an inch of earth over them; they are now in the pond to lay their eggs.

All these voices make pleasant music on the warm, still evenings when the life that is to be seems first to begin the stir, and we imagine we can almost hear the bursting of buds and the growing of the grass; but while the first frogs and toads

make such an impression on us, who hears the last ones? The peepers leave the water and live in bushes and trees through the summer, nocturnal, silent and unseen, but in late October, with a slow rain dripping on heaps of fallen leaves, you may hear a solitary peep, peep, here



TREE TOAD.



COMMON TOAD.

and there in the woods. The hyla, deceived by the spring-like temperature, has found his voice again, apparently. He is a difficult creature to observe, as you come near his music ceases, and then you cannot find him. John Burroughs says

he has had them peep while sitting on his hand, but I never yet saw one in the act. You may see swarms of them just out of the water, the grass will be alive with them. You will know them by the round knobs at the ends of their fingers and toes, a sure sign of a tree climbing species. By a muscular effort they create a vacuum under these pads, and the atmosphere fastens them to any surface. The common tree toad can climb a win-

dow pane with perfect ease. Lying on a white pond lily leaf (*Nymphaea*) I saw a tree toad of a most splendid tint of metallic green, and a small one of the same species showed they are breeding here, but I am told they belong to a southern species not before known to occur so far north. There is not too much exact knowledge of these interesting creatures, doubtless the things we do not know would make a large book. E. S. GILBERT.

EDITOR'S MISCELLANY.

A GOOD PLACE FOR THE BOYS.

A summer camp for boys, near Worcester, Mass., on the shore of Lake Quinsigamond, has been established several years by the Worcester Natural History Society, and is now a fixed institution. It is a pleasant and profitable place for boys to spend a part or the whole of their summer vacation. Here they can live in tents, fish, row, swim, and do all other reasonable things that to a boy's mind constitute "camping out." They will be in daily association with men of liberal education, who lecture on scientific subjects, take boys out on collecting expeditions, take part in their amusements, and are ready at all times to answer questions and assist those who desire to carry on work in any department of natural history, and do all in their power to make the season enjoyable. The camp occupies a forty acre park, including hills, forest and open land. The location is all that can be desired from a sanitary point of view. In this short notice it is impossible to tell of all the good things connected with this summer camp, where out-door sports and manual training and natural history and lectures are happily blended. Parents wishing to place their boys for the summer should write for prospectus to President Worcester Natural History Society, Museum No. 11 Foster Street, Worcester, Mass.

REPORT OF THE SECRETARY OF AGRICULTURE.

The first report of the Secretary of Agriculture has made its appearance. This is for the year 1889, and the Secretary is to be congratulated on the promptness of its issue as well as its valuable contents. The report proper of the Secretary gives fully and clearly the condition of the Agricultural Department and the work it has accomplished during the last year. Special attention is called to the valuable work that has been done by Farmers' Institutes. He says: "I am strongly of the opinion that, without going into details as to the precise way in which aid to the movement should be furnished by the national government, in pursuance of the policy so strongly marked out by the establishment of the agricultural colleges and experiment stations, should put it in the power of the Department of Agriculture to foster and encourage the work of the Institutes in the various States and Territories. The institutes have been justly designated 'Farmers' Colleges.' No truer title was ever conferred."

THE ROSE BUG.

The last number of *Insect Life* has an extended article in regard to rose bugs, by C. V. Riley, and the methods that have been tried to destroy it.

Hand picking and throwing the insects into hot water or oil has been one of the most effective methods. The results of the use of hellebore and pyrethrum have been conflicting, though pyrethrum is the most promising material. Col. A. W. Pearson states that eau celeste is not only the best remedy for mildew, but also at the same time an effective poison to the rose bug, *Macrodactylus subspinosis*.

VICK'S MAGAZINE WANTED.

Persons having the numbers of this MAGAZINE for the year 1878 can exchange them with us, if desired, for numbers of the current year, or commence subscription at any month. If the numbers cannot be sent complete for that year, those that are on hand may be sent.

As we are entirely out of the numbers of this first volume, we hope some of our old subscribers who may have them, and are willing to exchange, will hunt them up and forward them to us. We should also like some of the January number, 1887.

AMERICAN SEEDSMEN.

The annual meeting of the American Seed Trade Association was held at Saratoga Springs, N. Y., June 10th and 11th.

It was almost entirely a business meeting. For the ensuing year, Albert McCullough, of Cincinnati, was elected President, and John Fottler, Jr., of Boston, Secretary and Treasurer.

ENTOMOLOGY OF ONTARIO.

We have received the twentieth annual report of the Entomological Society of Ontario, and find it full of well written articles, interesting as scientific contributions, and of practical value to the working farmer and gardener. We suppose our thanks are specially due to W. E. Saunders, Secretary and Treasurer, for the copy.

ALL KNOWN FERNS.

This valuable work, which has for some time been announced, we are informed by a private letter from the author, is ready to be placed in the hands of the printer, and will probably be ready to send out some time the coming autumn.

THE CORTLAND GRAPE.

A new grape of this name, which originated in Canada, is claimed to be the earliest of all native varieties—three to four weeks earlier than Concord, and similar to it in appearance and quality. Prolific, hardy, and a strong grower.



LYCASTE SKINNERI.